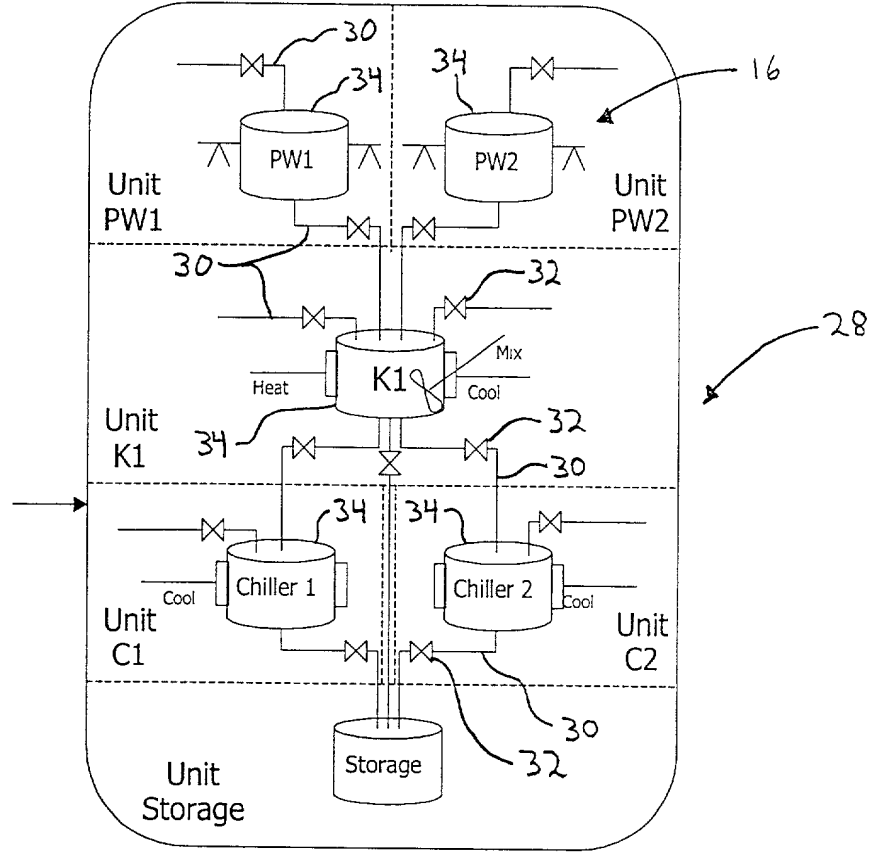


Fig. 1





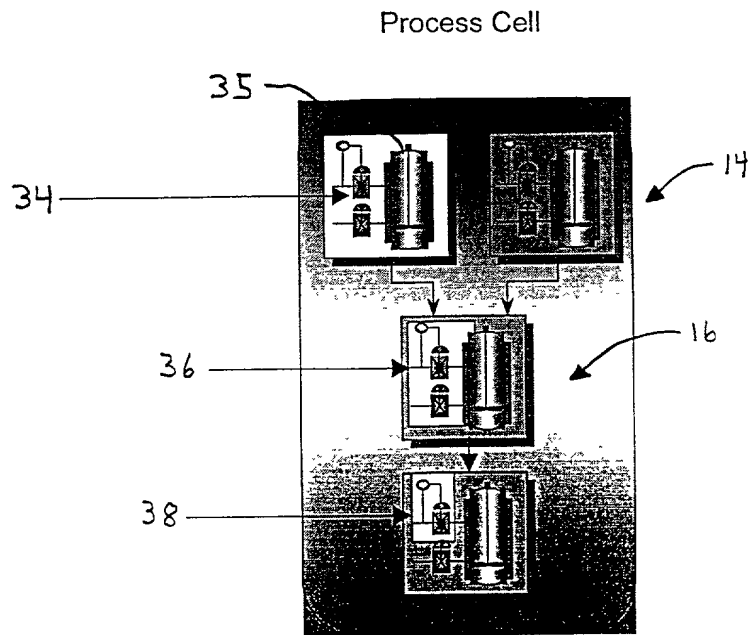


Fig. 4

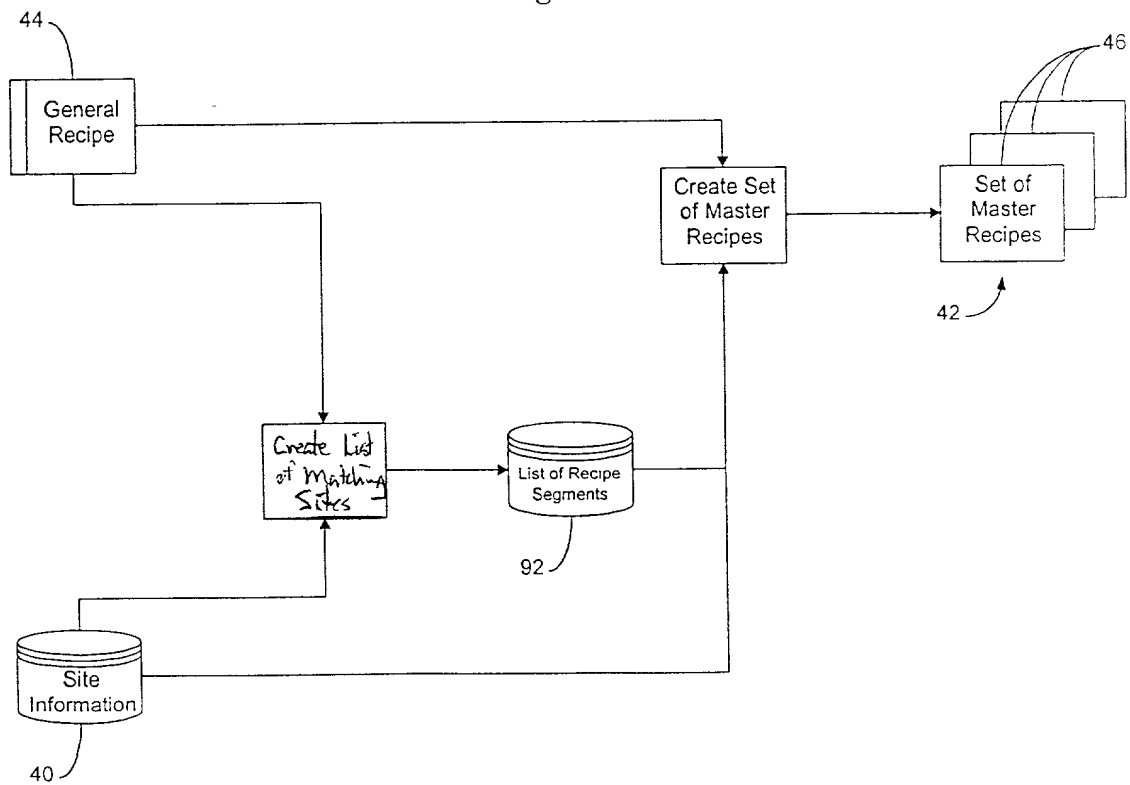


Fig. 5

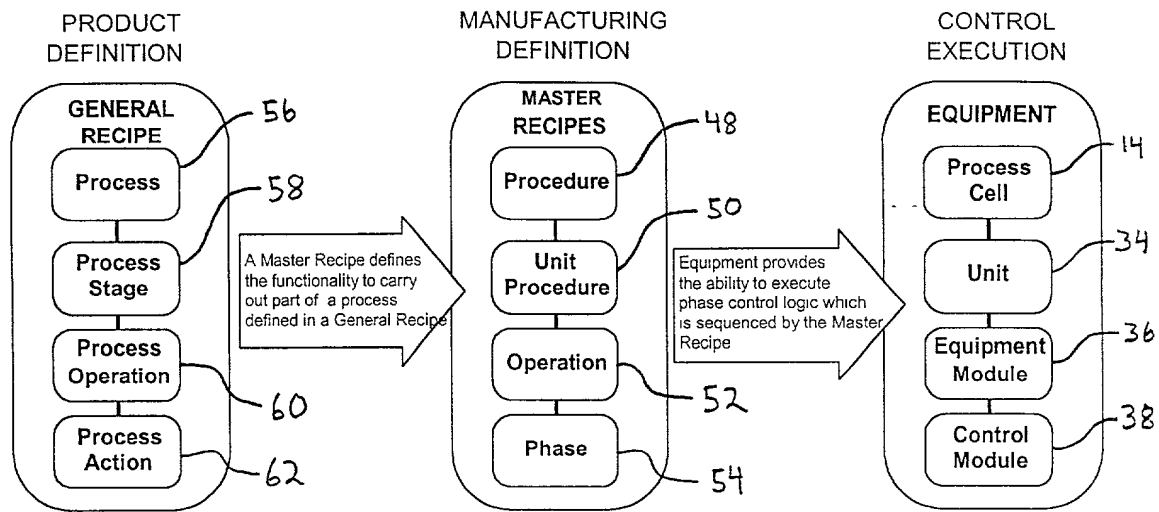


Fig. 6

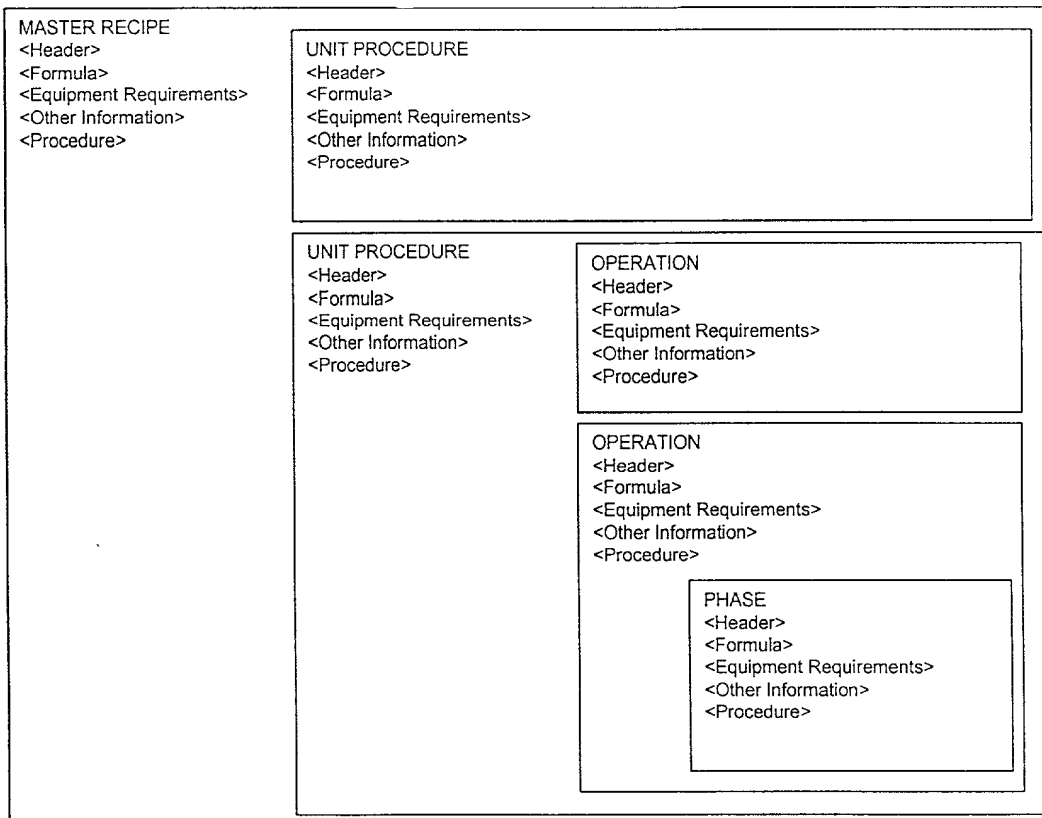


Fig. 7

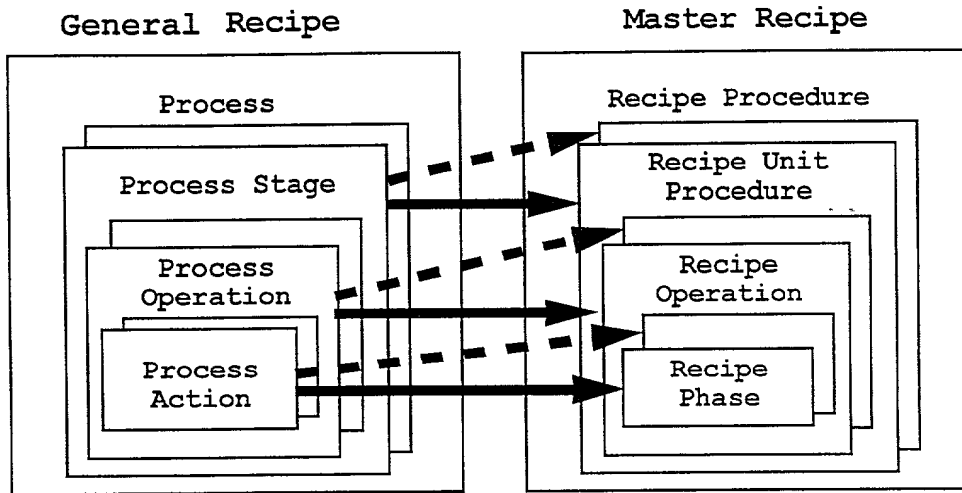


Fig. 8

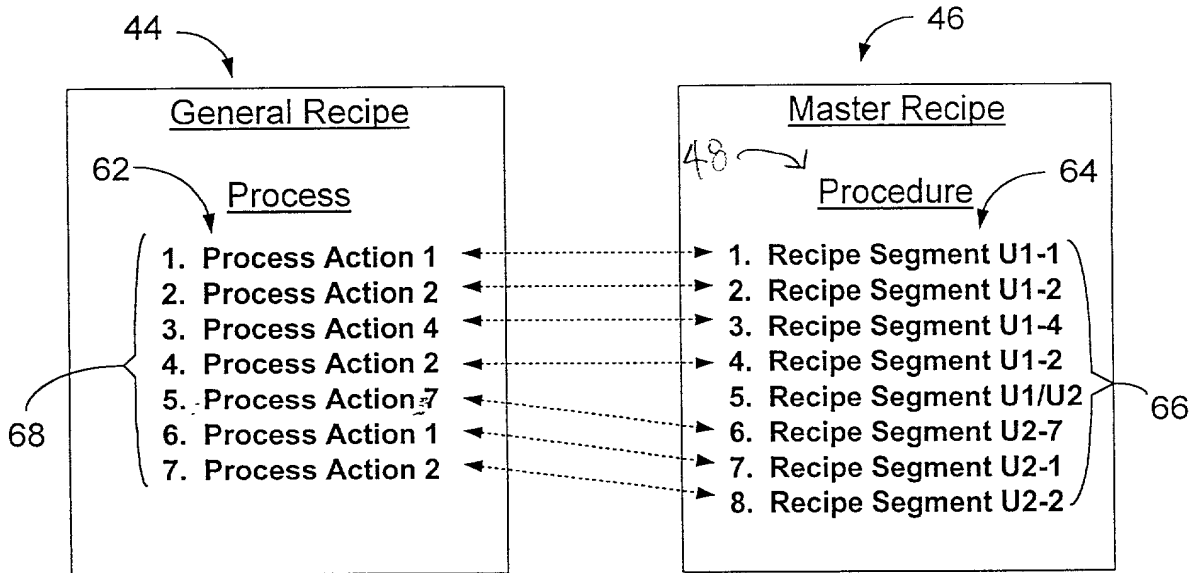


Fig. 9

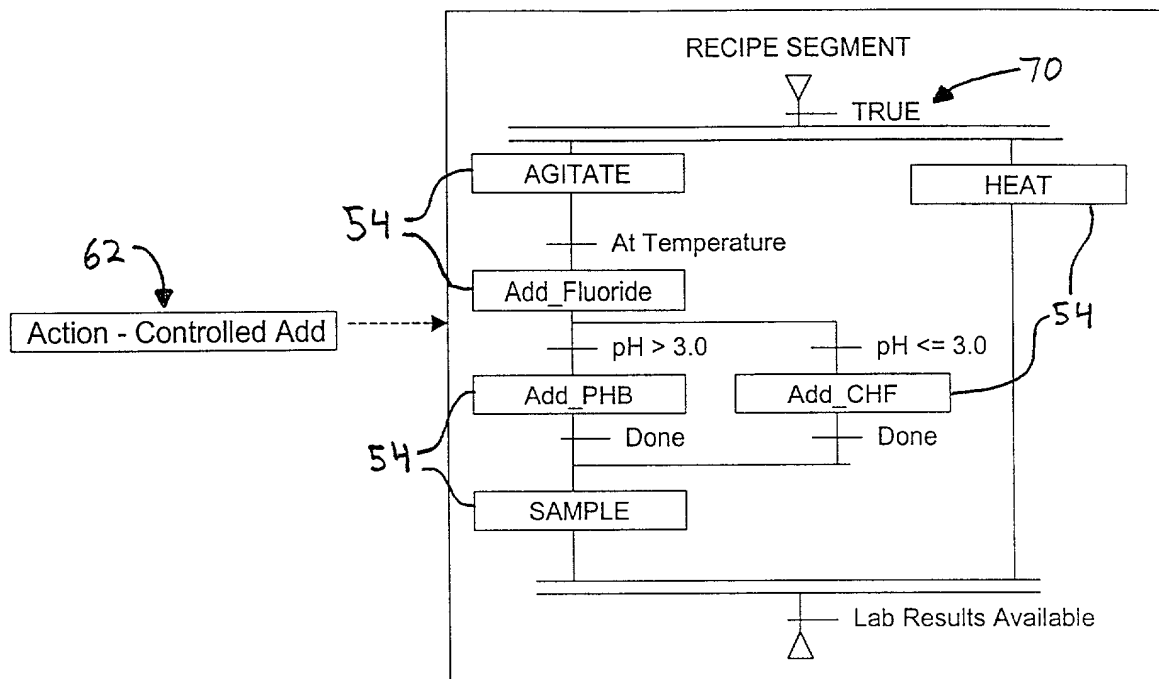
[illegible]

Fig. 10







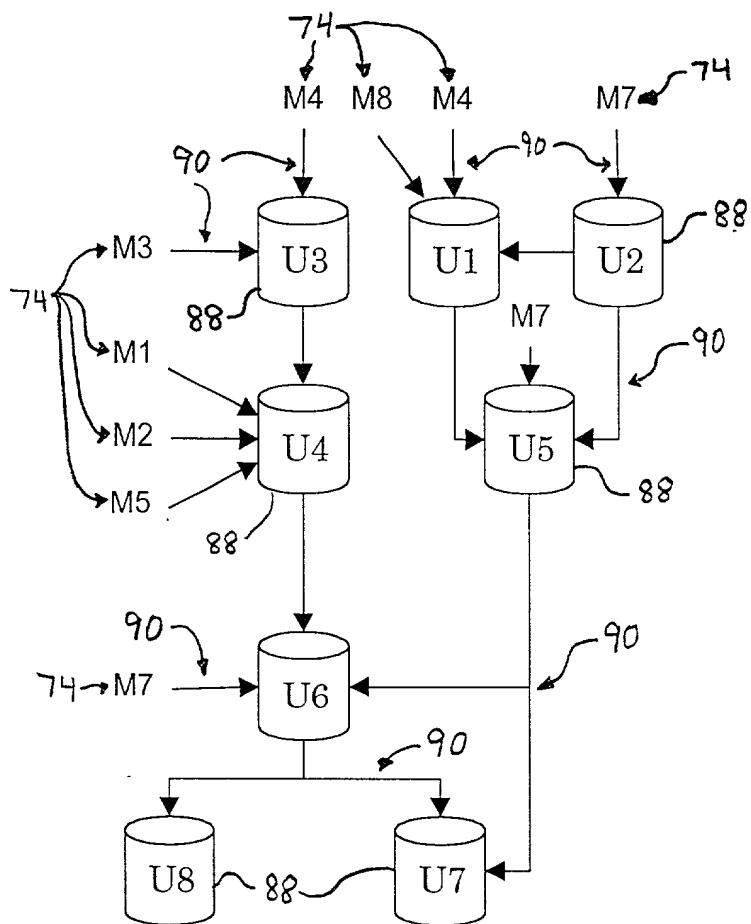


Fig. 13

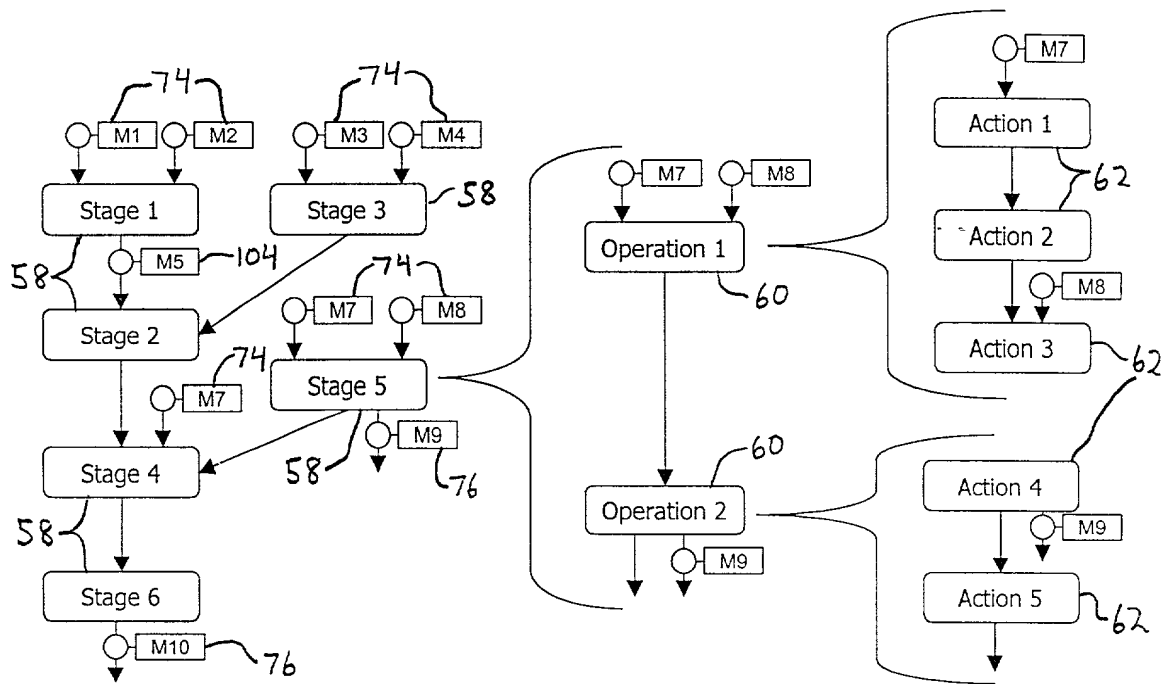


Fig. 14



Unit From	Unit To	Transfer From Recipe Segment	Transfer To Recipe Segment
U2	U1	SEG U2-T5	SEG U1-T2
U2	U5	SEG U2-T5	SEG U5-T2
U1	U5	SEG U1-T5	SEG U5-T1
U3	U4	SEG U3-T4	SEG U4-T3
U4	U6	SEG U4-T6	SEG U6-T4
U5	U6	SEG U5-T6	SEG U6-T5
U5	U7	SEG U5-T7	SEG U7-T5
U6	U7	SEG U6-T7	SEG U7-T6
U6	U8	SEG U6-T8	SEG U8-T6

Fig. 16

Recipe Segment	Unit	Class	Material	Action
SEG U1-1-7	U1	No	M7	Action 1
SEG U1-2	U1	No		Action 2
SEG U1-3-8	U1	No	M8	Action 3
SEG U1-5	U1	No		Action 5
SEG U1-4	U1	No		Action 4
SEG U2-1-7	U2	No	M7	Action 1
SEG U2-1-7B	U2	No	M7	Action 1
SEG U3-15-3	U3	Yes	M3	Action 15
SEG U3-16	U3	Yes		Action 16
SEG U3-17-4	U3	Yes	M4	Action 17
SEG U4-1-5	U4	No	M5	Action 1
SEG U4-16	U4	No		Action 16
SEG U4-17	U4	No		Action 17
SEG U4-5	U4	No		Action 5
SEG U4-3-1	U4	Yes	M1	Action 3
SEG U4-3-2	U4	No	M2	Action 3
SEG U4-7	U4	Yes		Action 7
SEG U5-1-7	U5	No	M7	Action 1
SEG U5-5	U5	No		Action 5
SEG U5-4	U5	No		Action 4
SEG U6-1-7	U6	No	M7	Action 1
SEG U6-5	U6	No		Action 5
SEG U6-7	U6	Yes		Action 7
SEG U7-6	U7	No		Action 6
SEG U7-10	U7	No		Action 10
SEG U8-6	U8	No		Action 6
SEG U8-10	U8	No		Action 10

Fig. 17

Unit	Start Recipe Segment	End Recipe Segment
U1	SEG U1-S	<null>
U2	SEG U2-S	SEG U2-E
U3	<null>	SEG U3-E
U4	SEG U4-S	SEG U4-E
U5	<null>	<null>
U6	<null>	<null>
U7	<null>	<null>
U8	<null>	<null>

Fig. 18

Unit	Material of Construction	Unit Type	Volume	Agitation Speed		Temperature		Pressure	
				Max.	Min	Max.	Min.	Max.	Min.
U1	SS	Mixer	10000	200	0	<NULL>	<NULL>	<NULL>	<NULL>
U2	SS	Chiller	5000	20	20	<NULL>	-50	<NULL>	<NULL>
U3	SS/GL	Mixer	5000	100	0	<NULL>	<NULL>	30	-1
U4	SS/GL	Reactor	3000	100	0	300	-50	100	-1
U5	SS	Reactor	5000	100	0	250	<NULL>	50	<NULL>
U6	SS/GL	Reactor	2000	50	0	400	-100	100	-1
U7	SS	Separator	5000	100	0	300	-50	30	-1
U8	SS/GL	Separator	10000	200	0	250	<NULL>	10	-1

Fig. 19

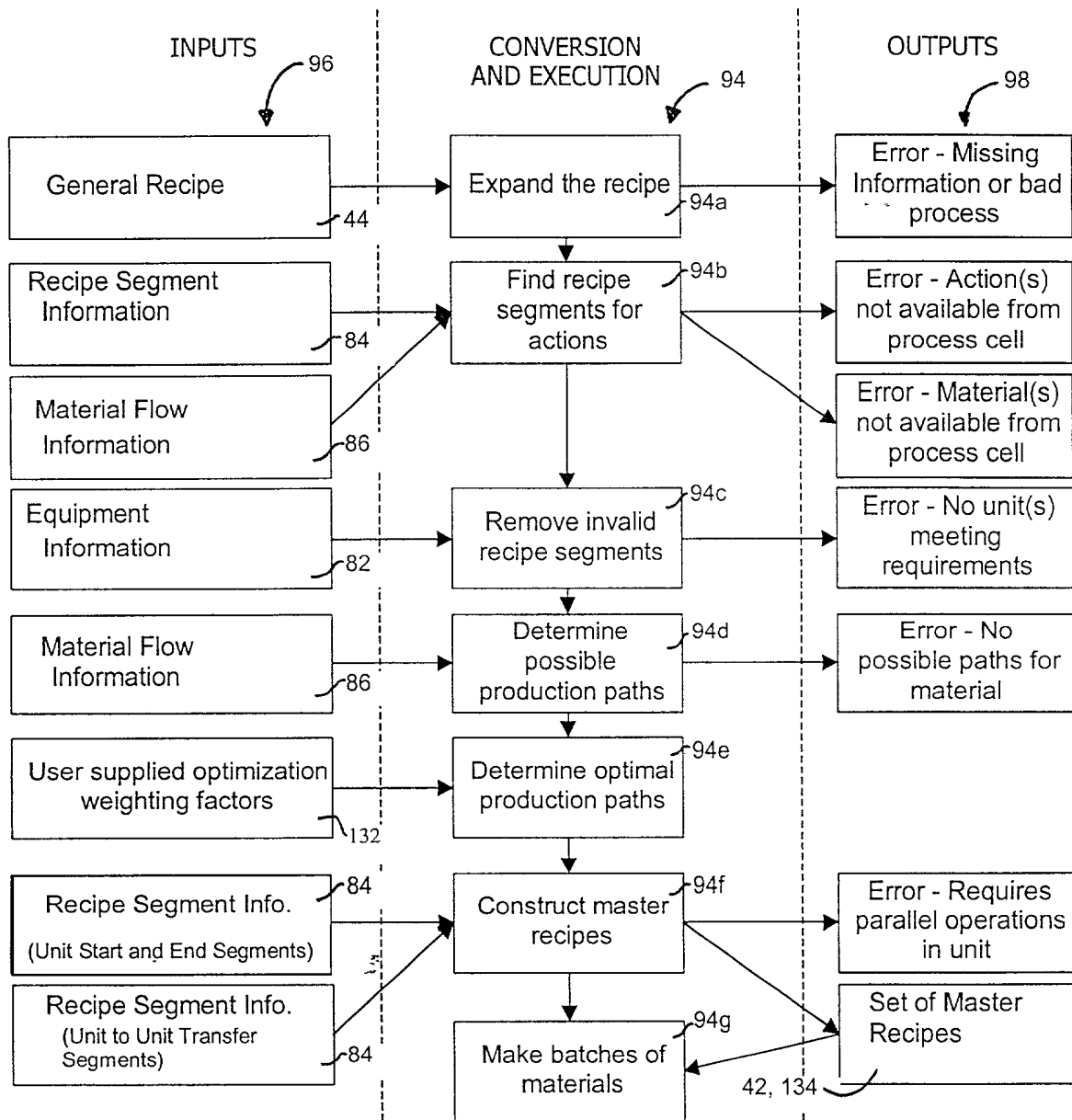


Fig. 20

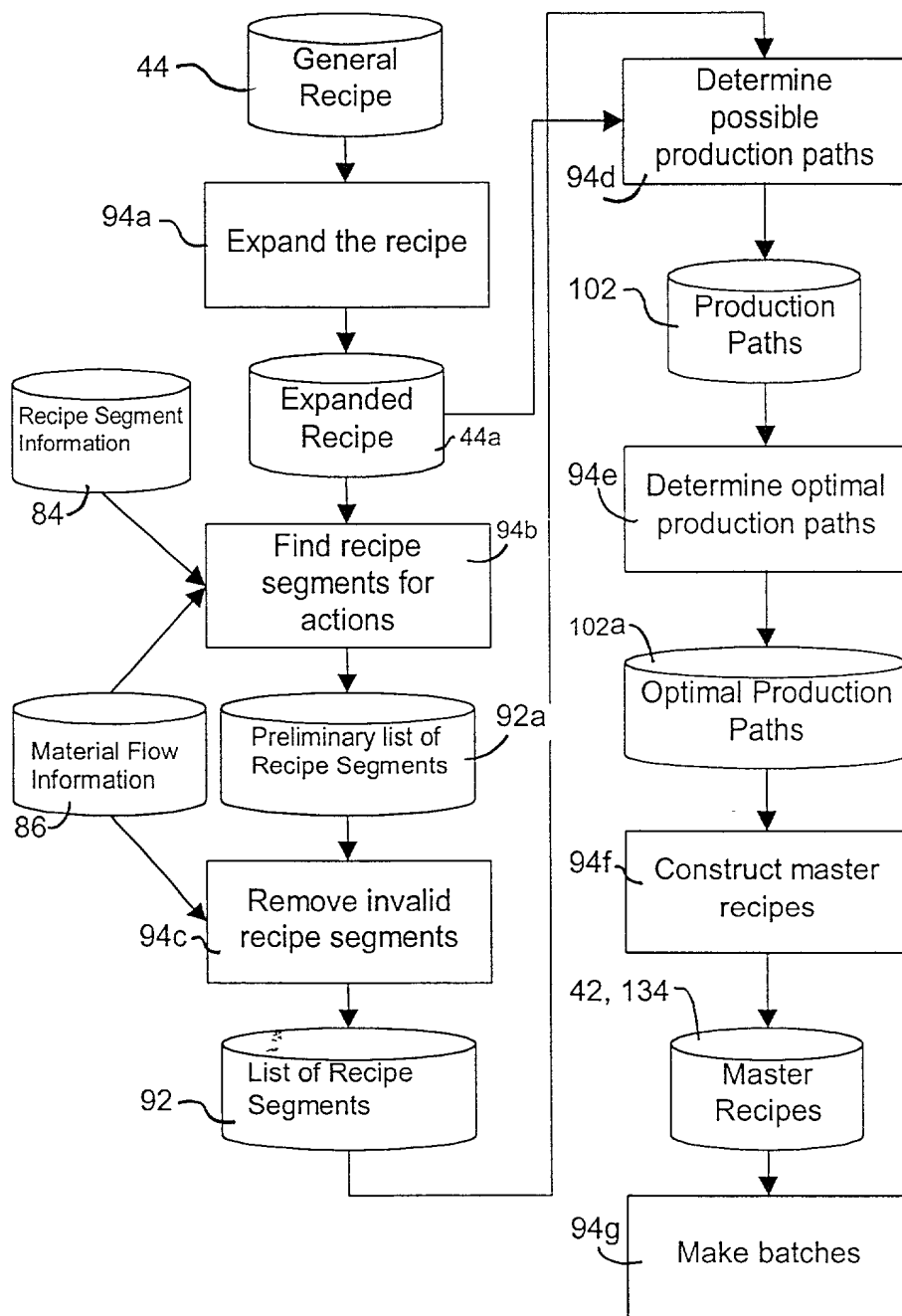


Fig. 21



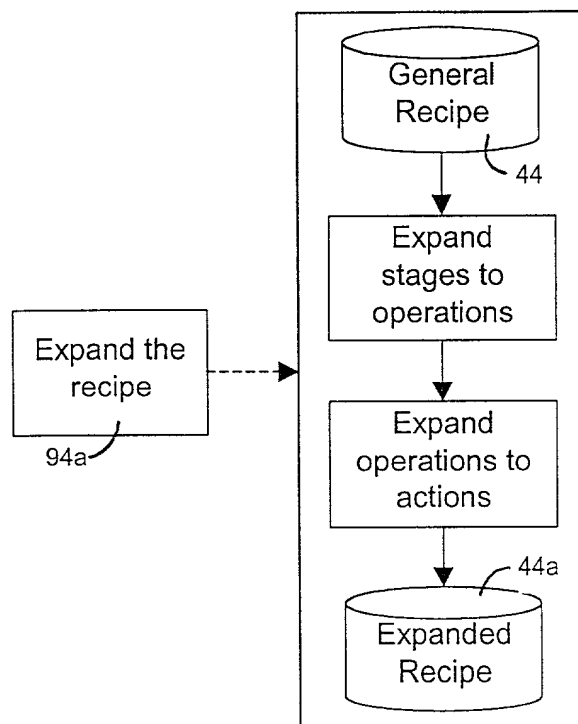


Fig. 22

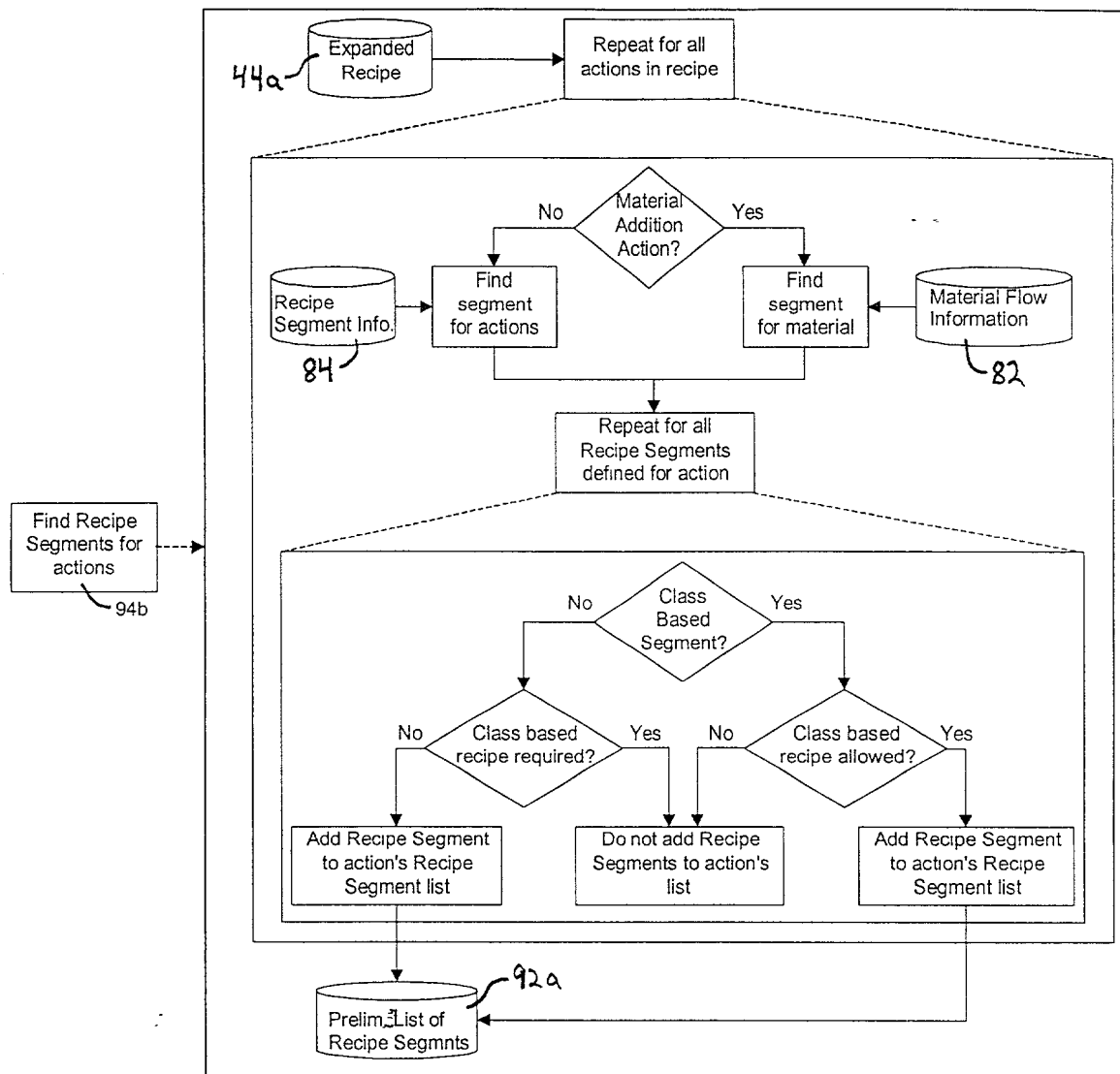


Fig. 23

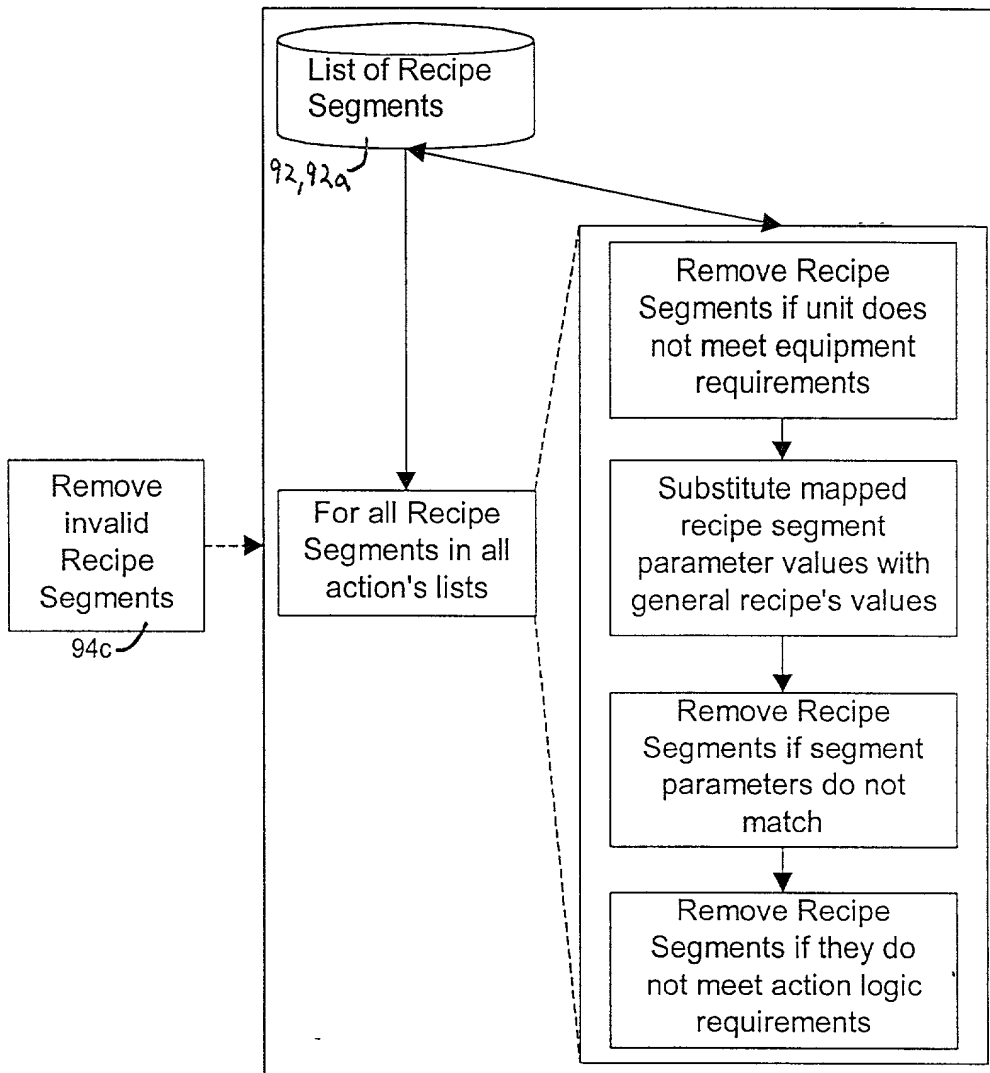


Fig. 24

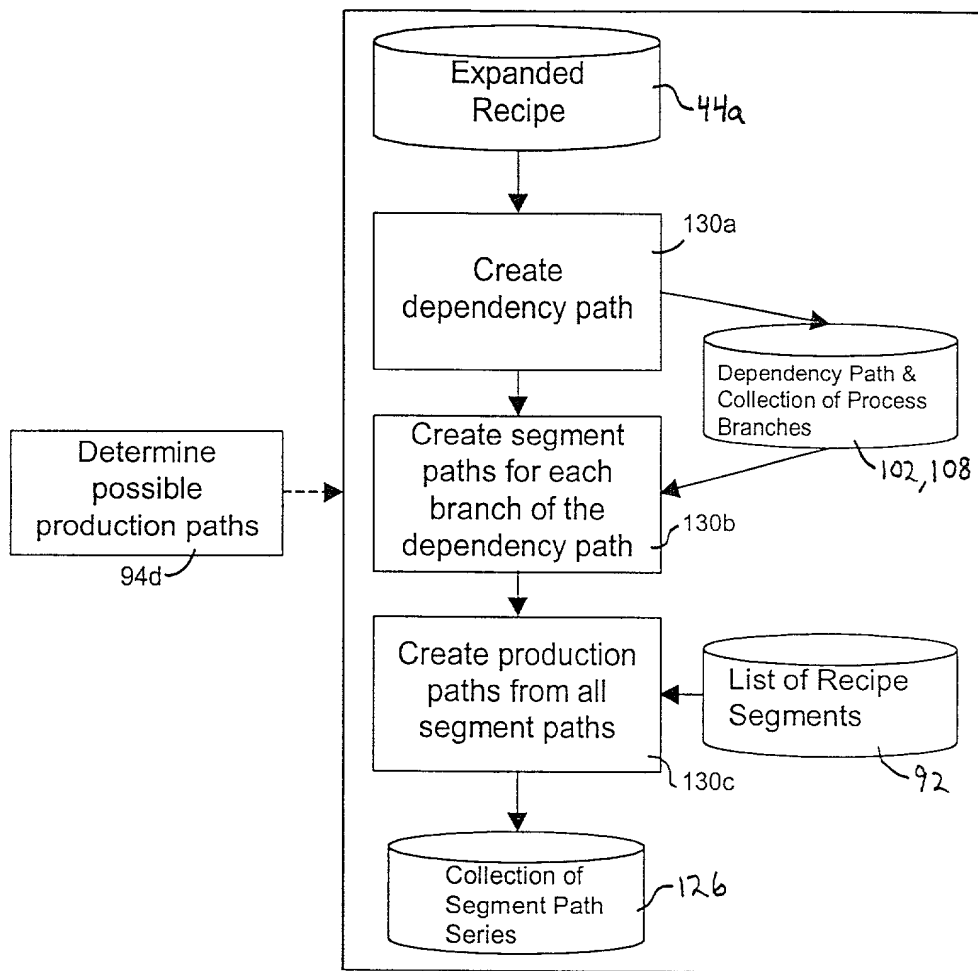


Fig. 25

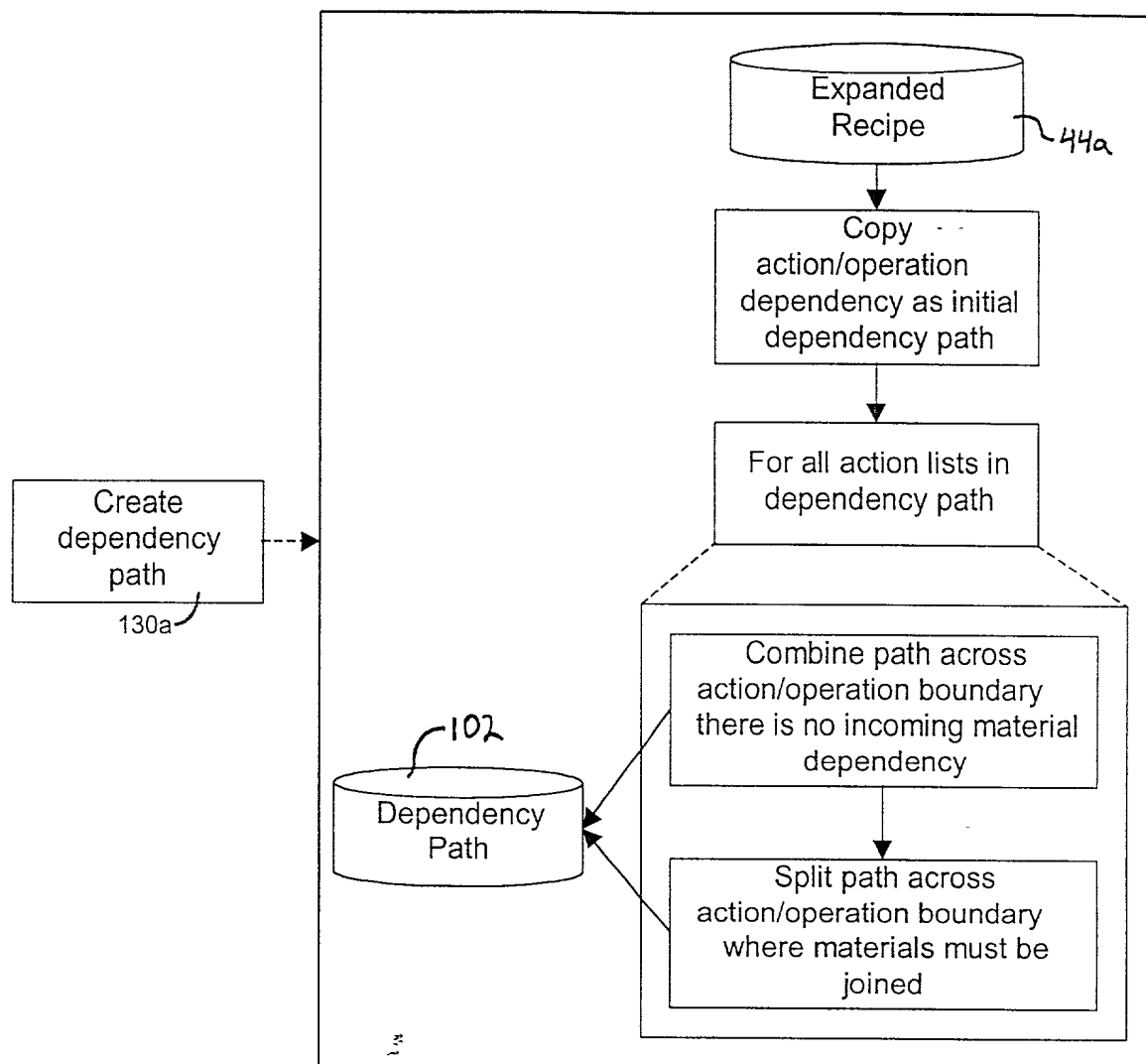


Fig. 26

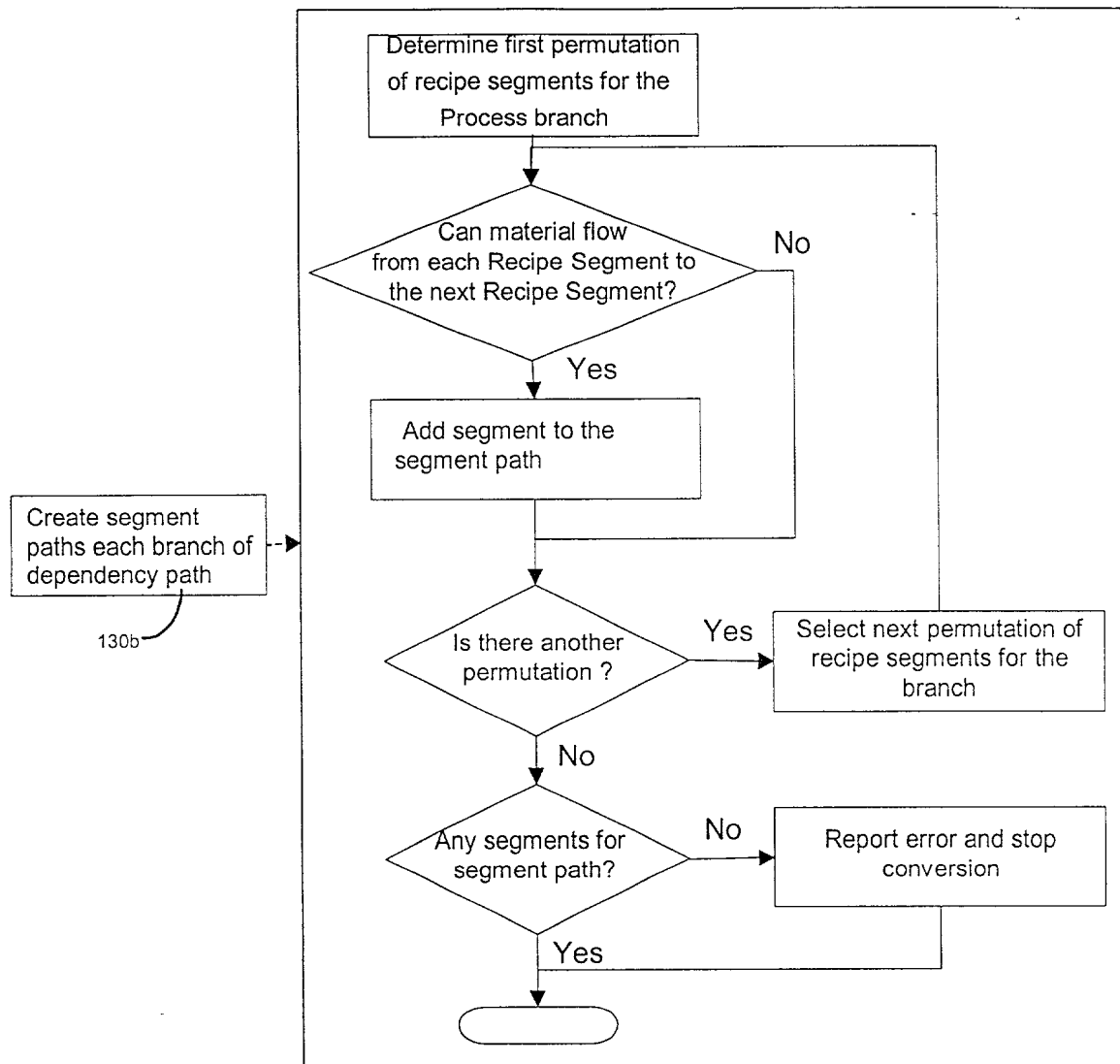


Fig. 27

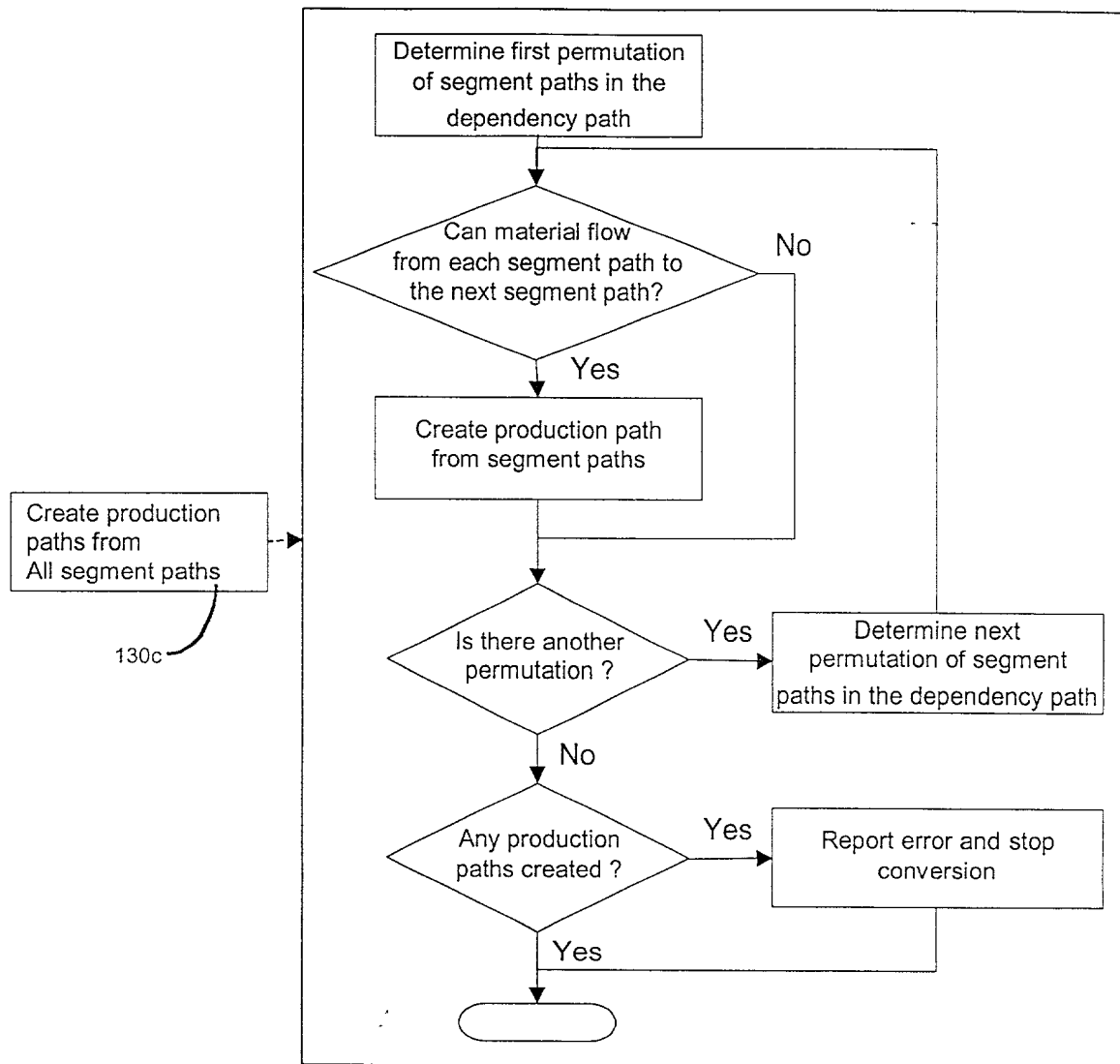


Fig. 28

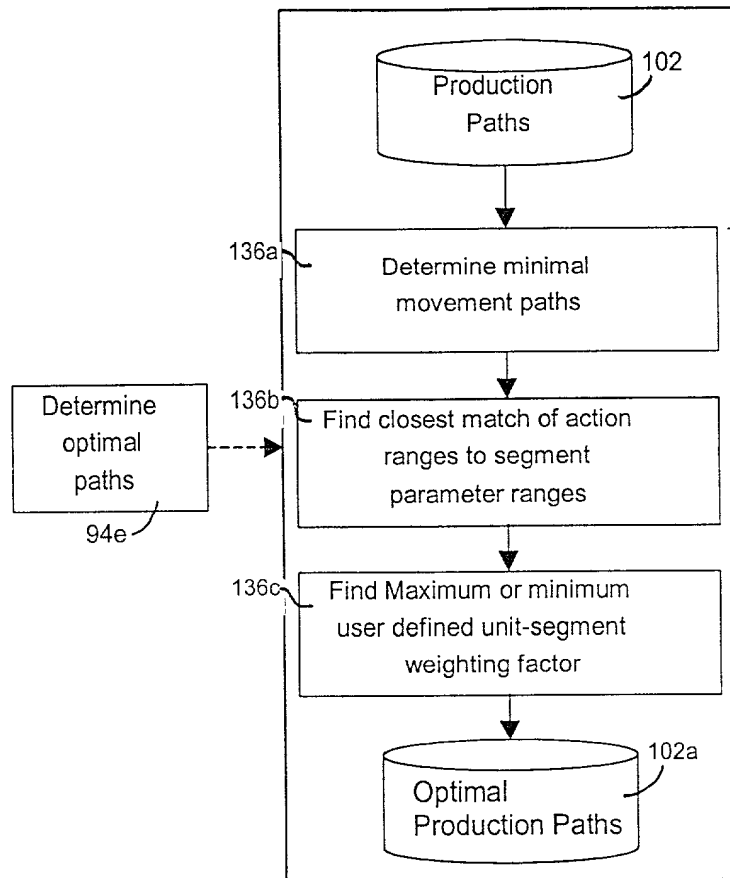


Fig. 29

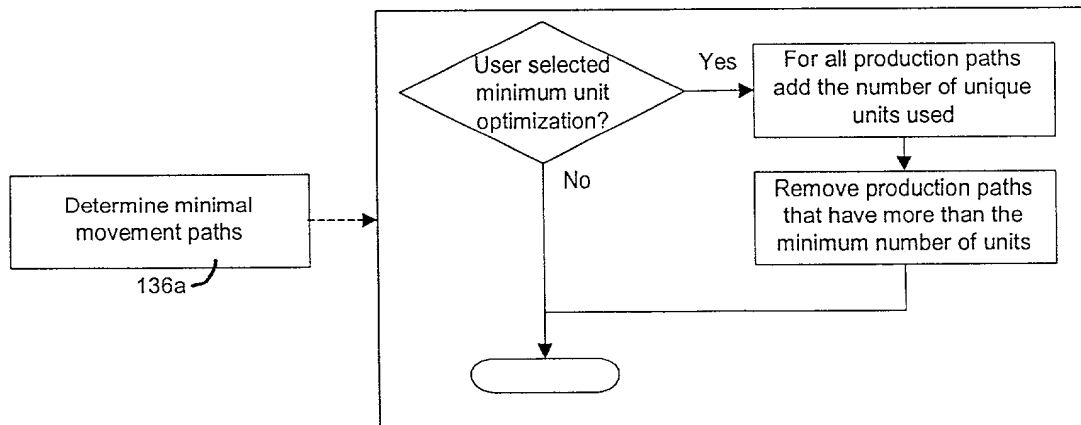


Fig. 30



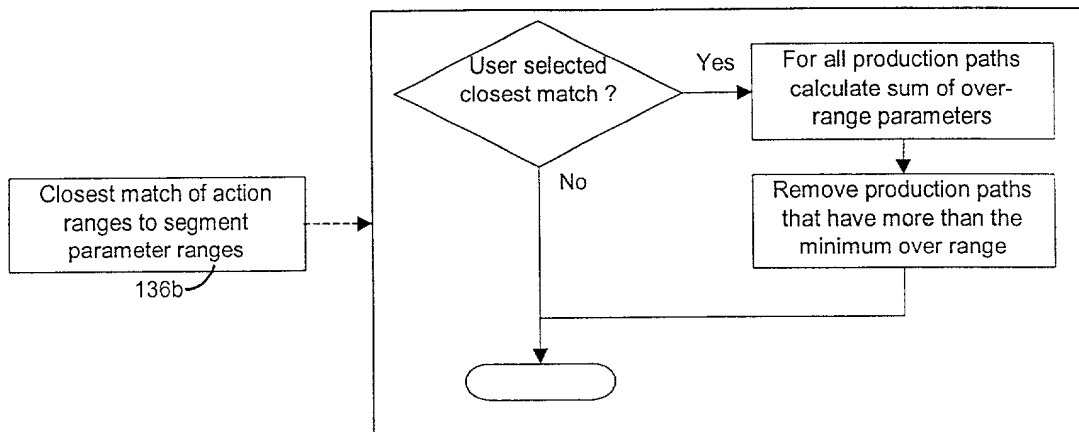


Fig. 31

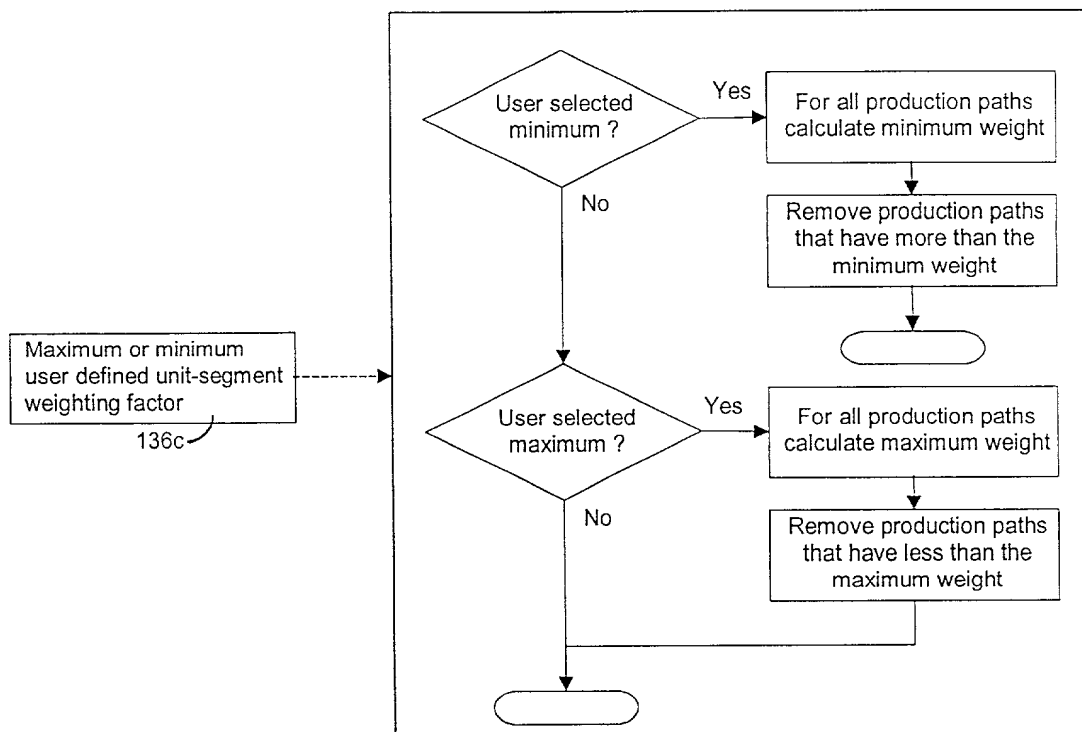


Fig. 32

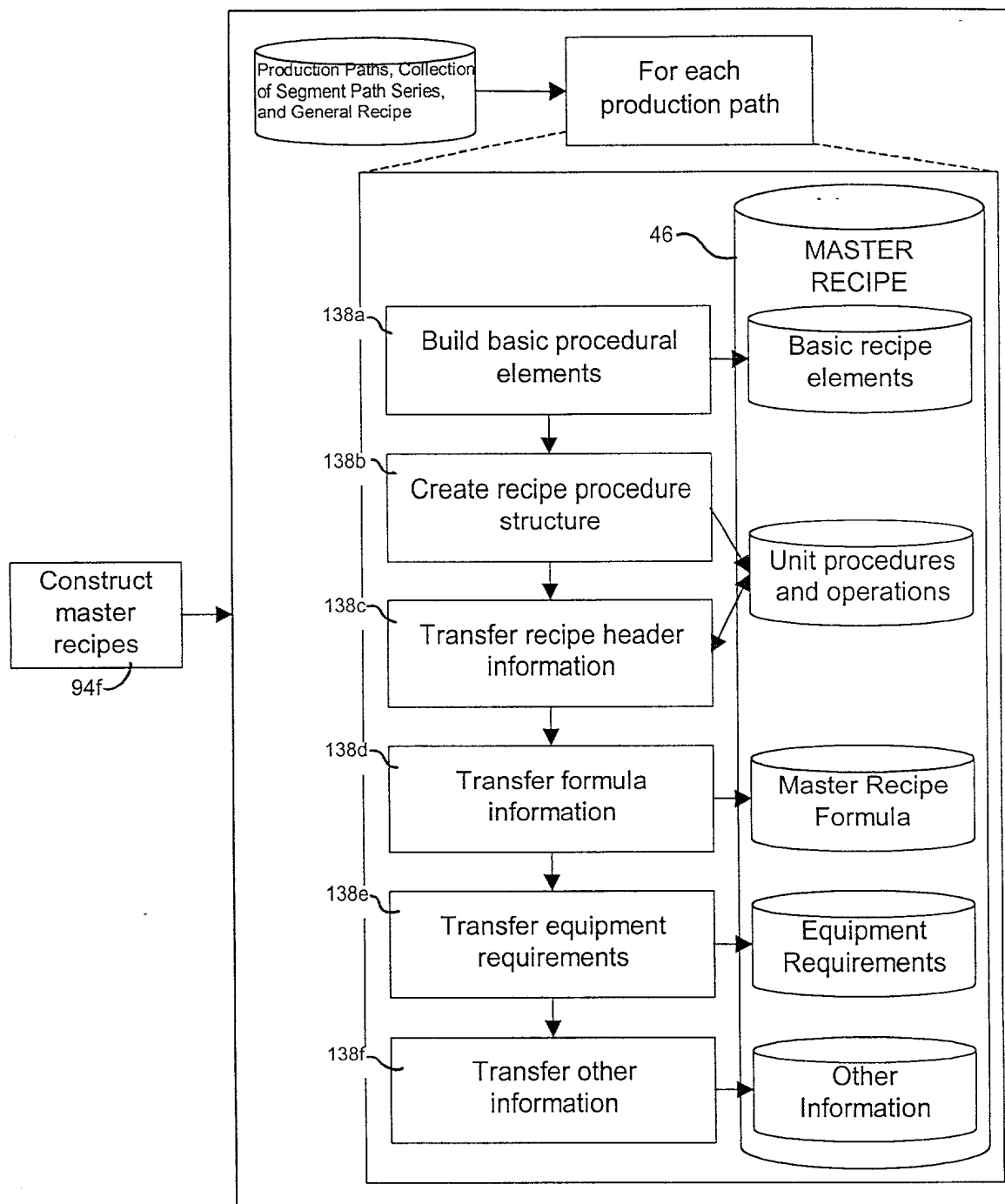


Fig. 33

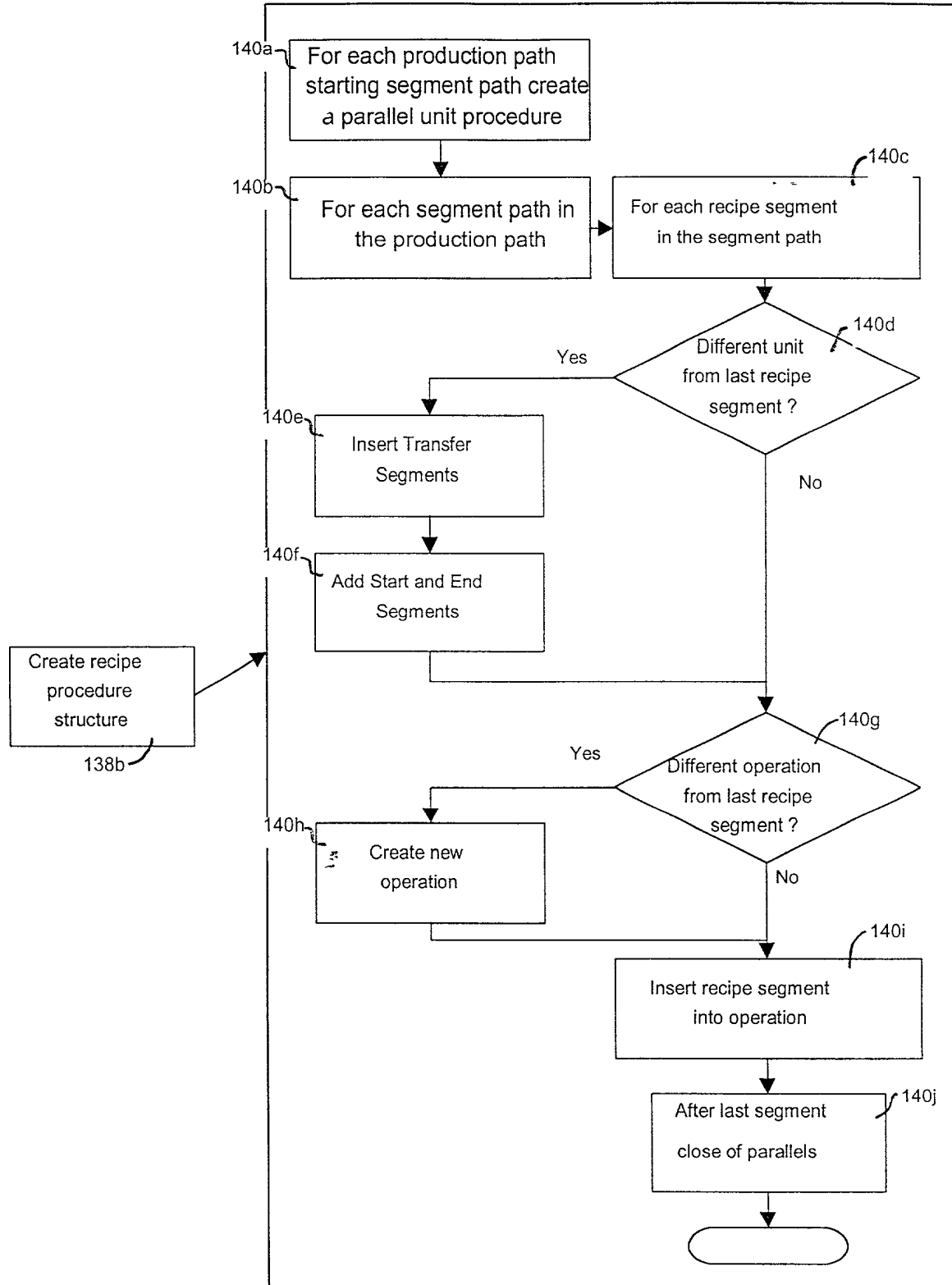


Fig. 34

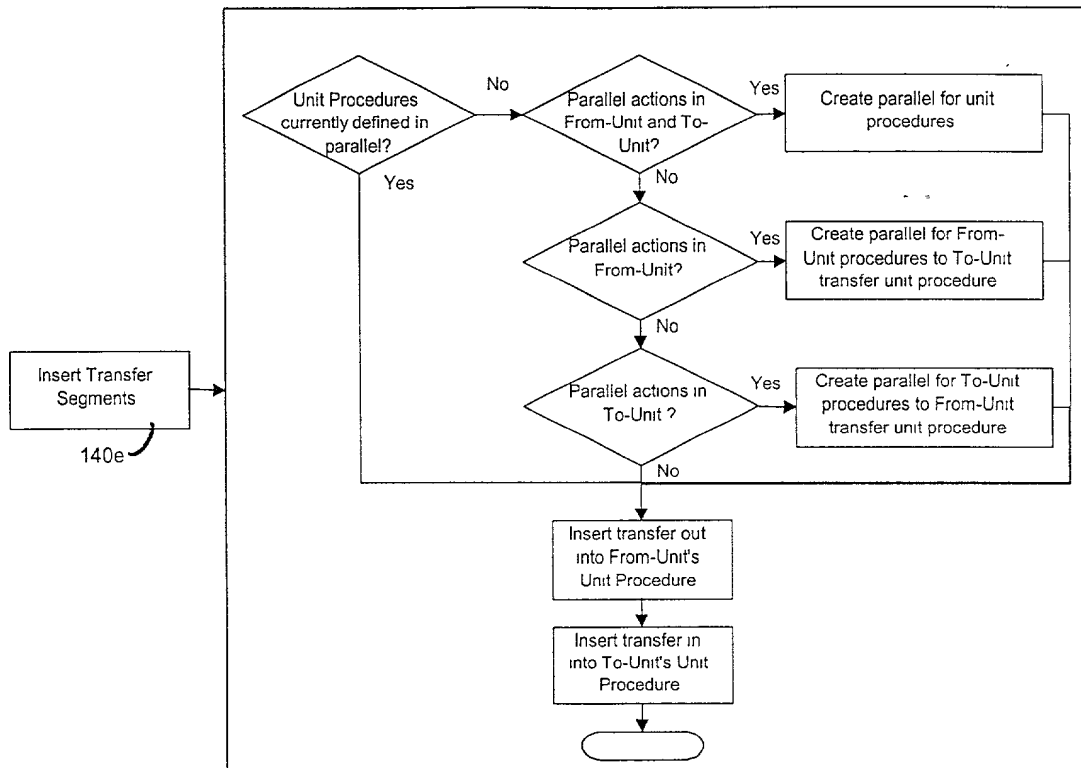


Fig. 35

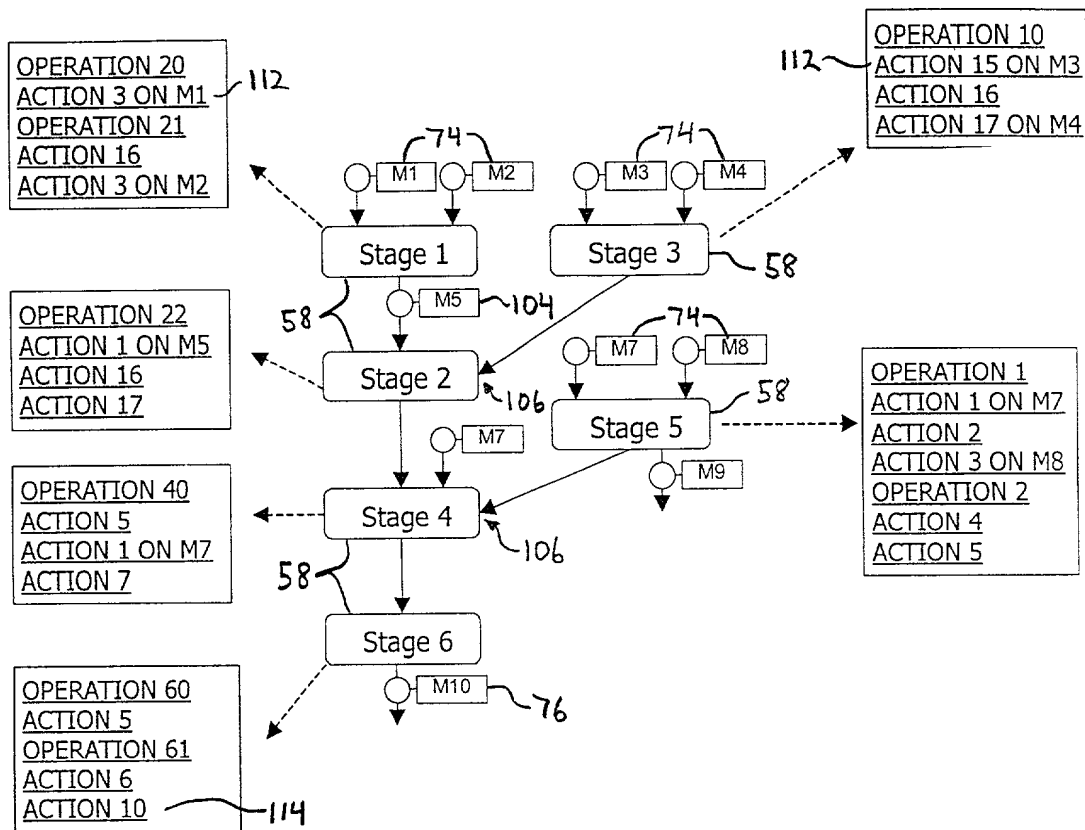


Fig. 36

### General Recipe Elements

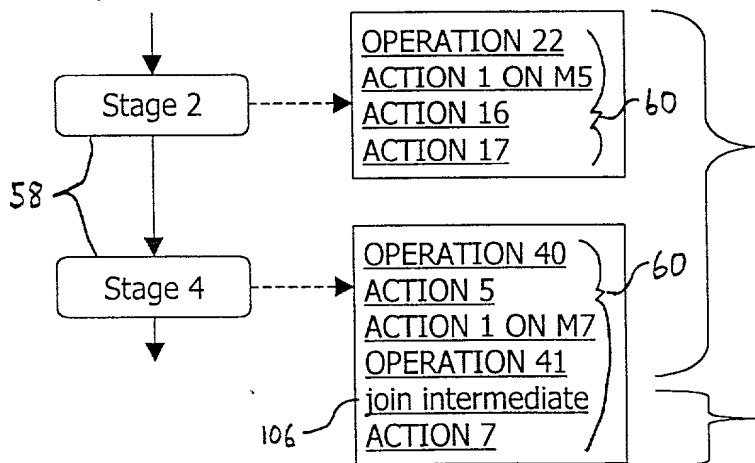


Fig. 37

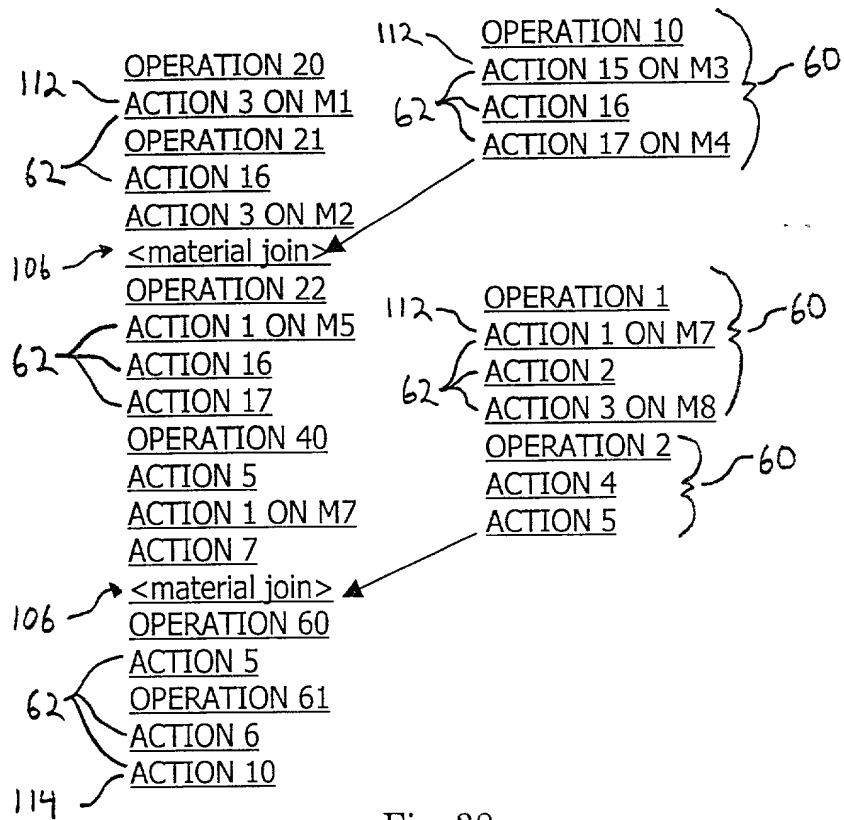


Fig. 38

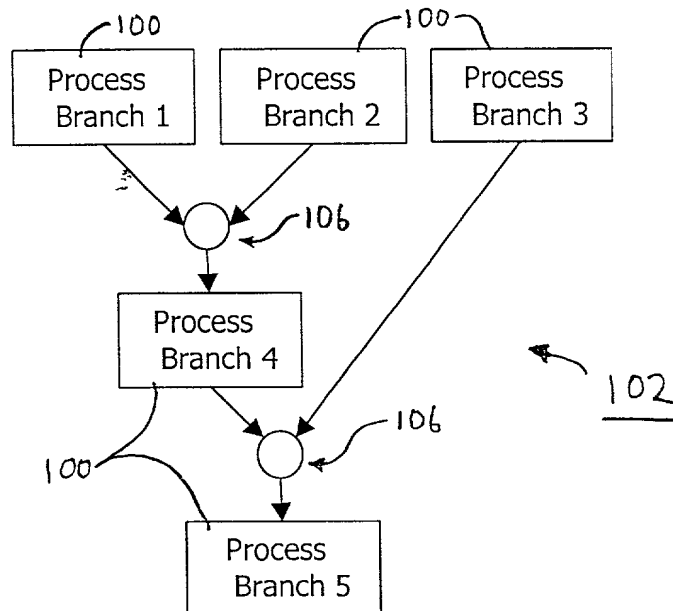


Fig. 39

From Element	To Element	From Type	To Type
Path 1	Join 1	Path	Join
Path 2	Join 1	Path	Join
Join 1	Path 4	Join	Path
Path 3	Join 2	Path	Join
Path 4	Join 2	Path	Join
Join 2	Path 5	Join	Path

Fig. 40

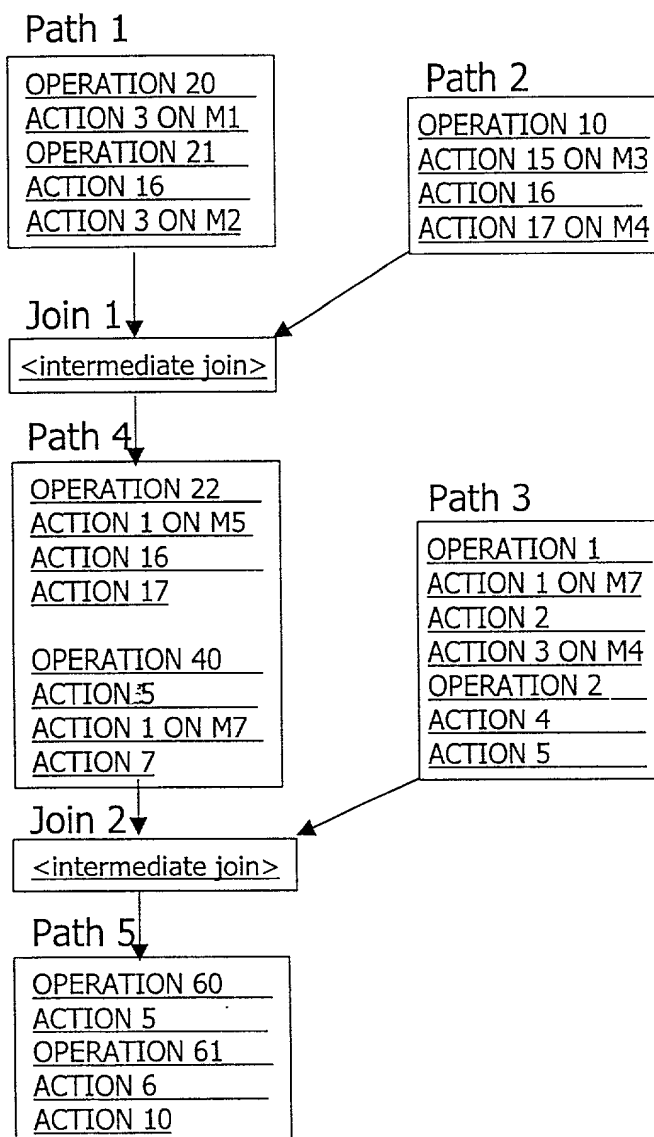


Fig. 41

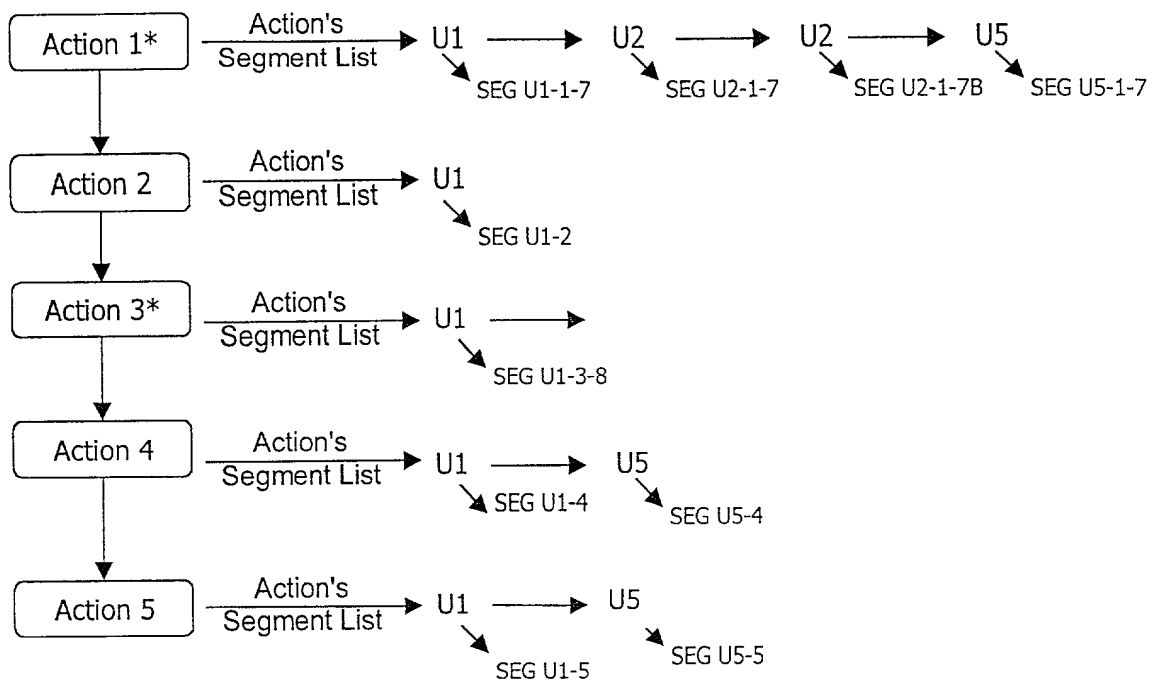


Fig. 42

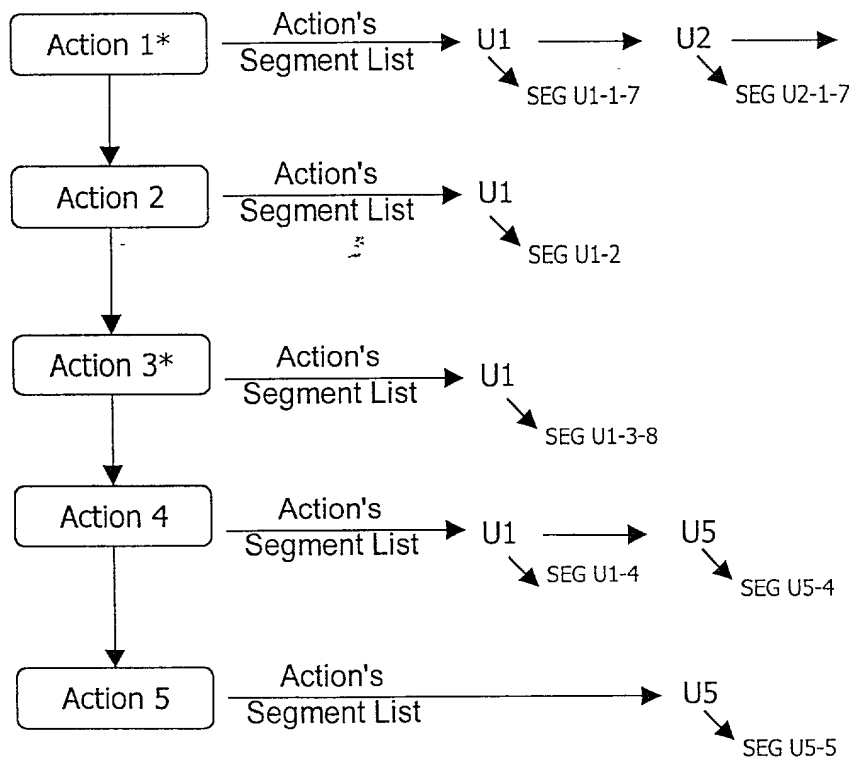


Fig. 43



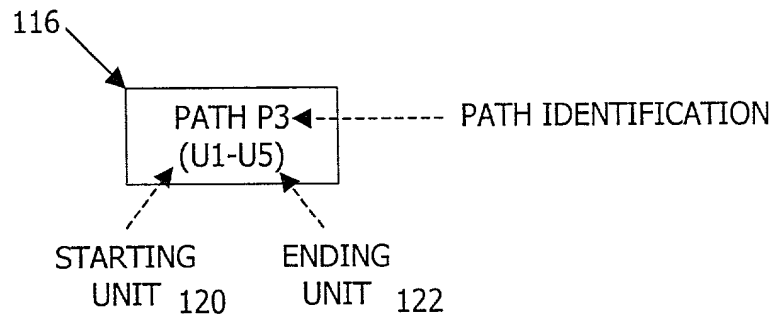


Fig. 44

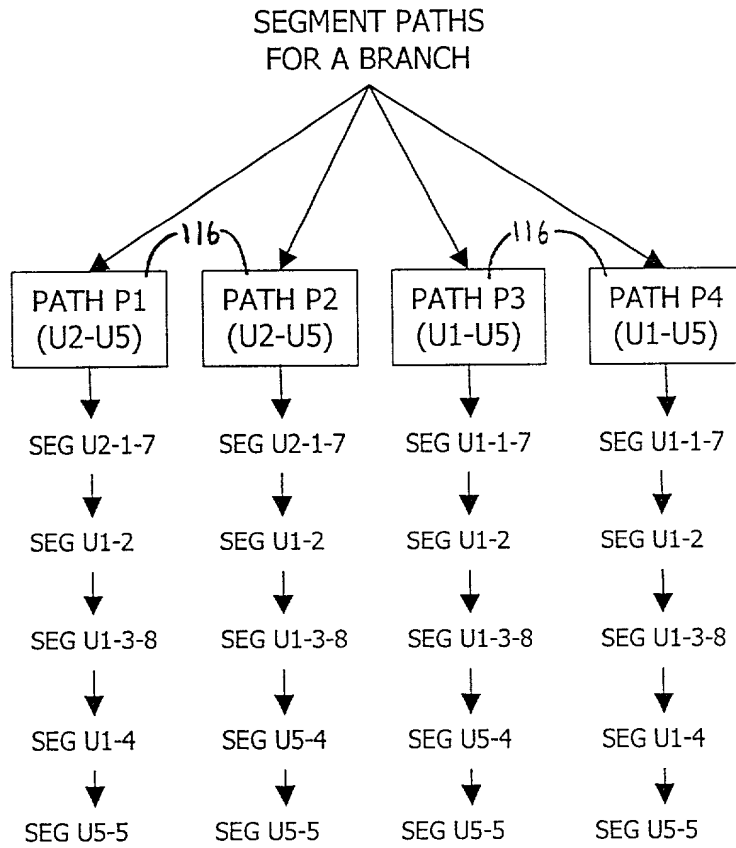


Fig. 45

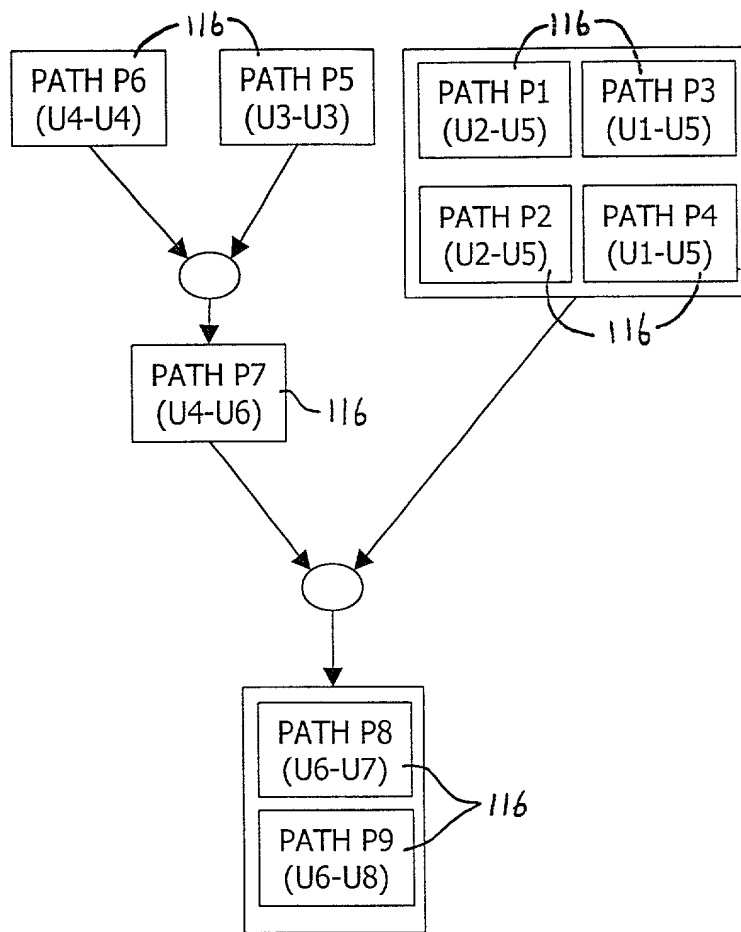


Fig. 46

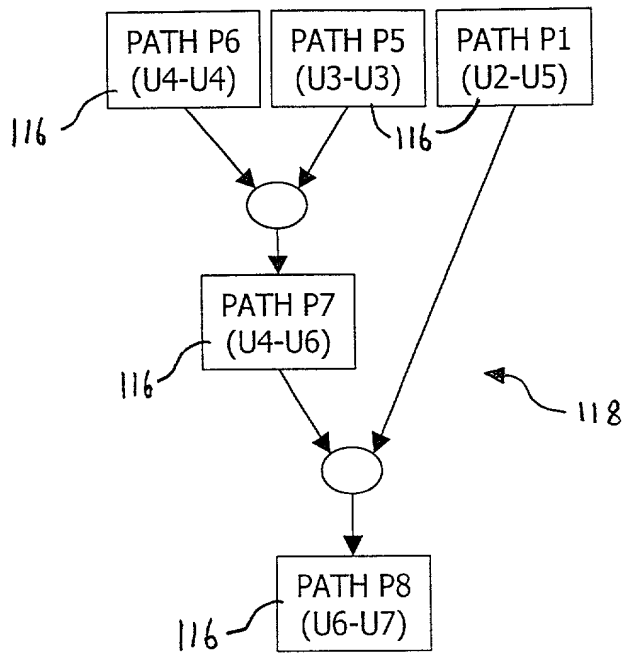


Fig. 47

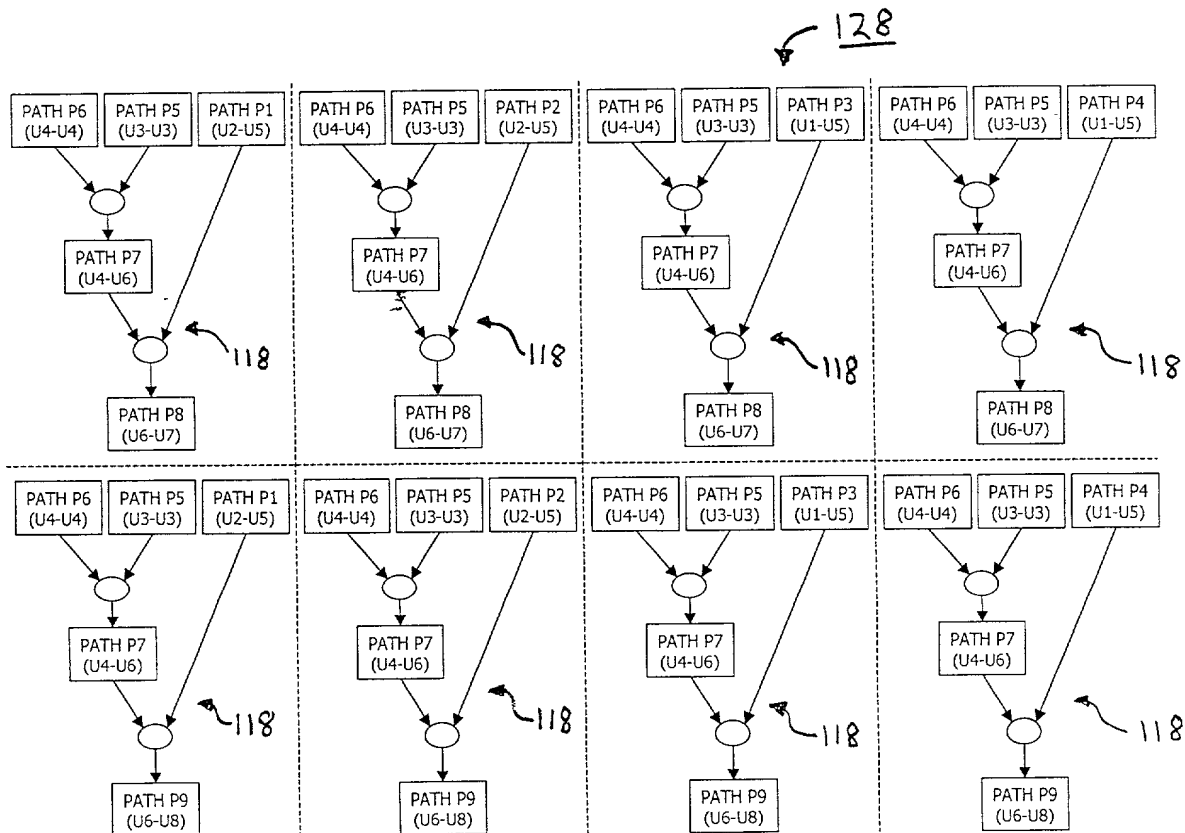


Fig. 48

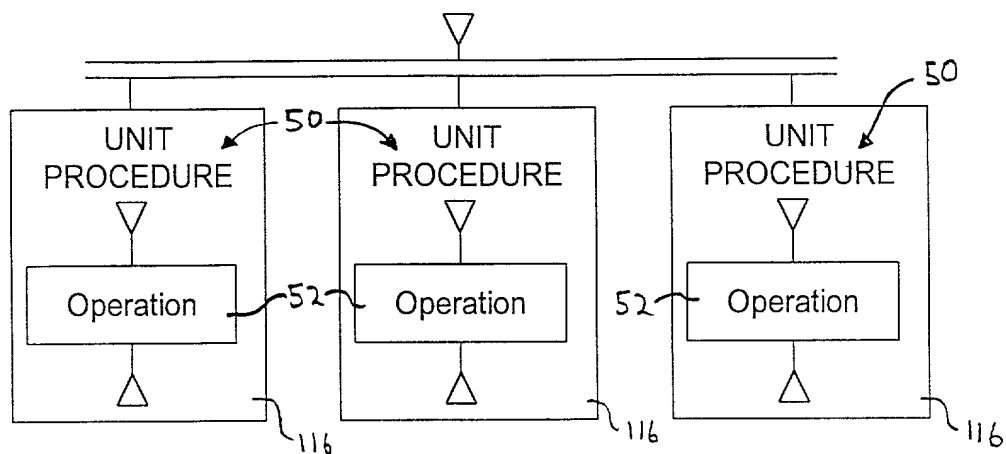


Fig. 49

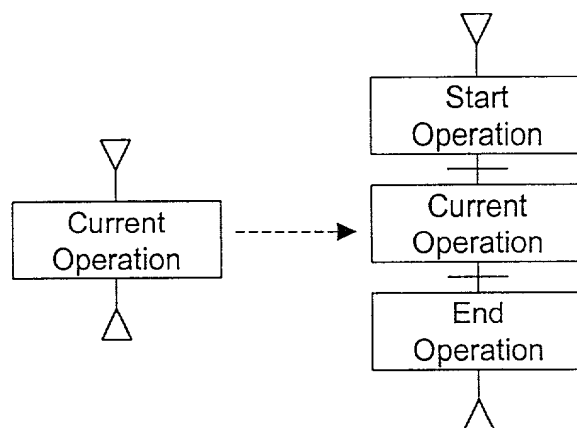


Fig. 50

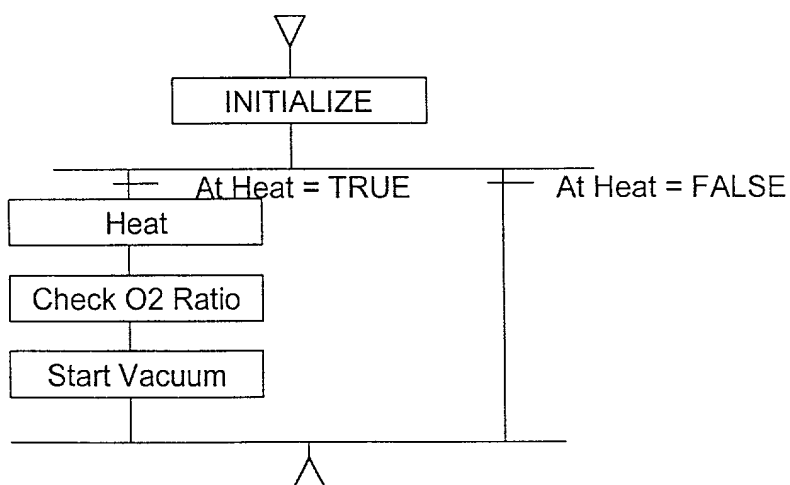


Fig. 51

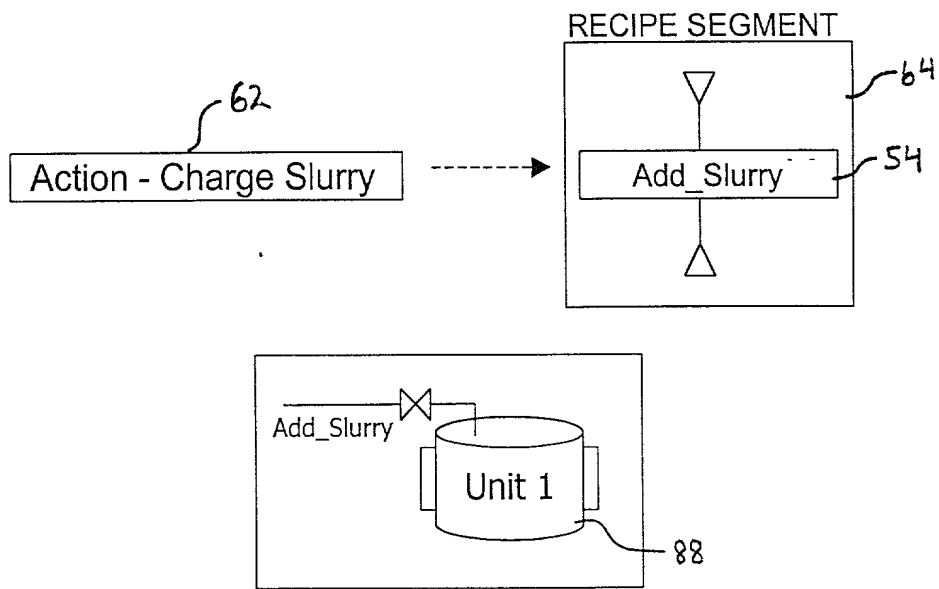


Fig. 52

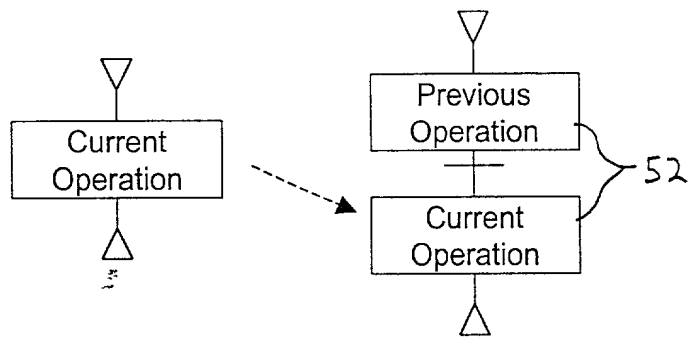


Fig. 53

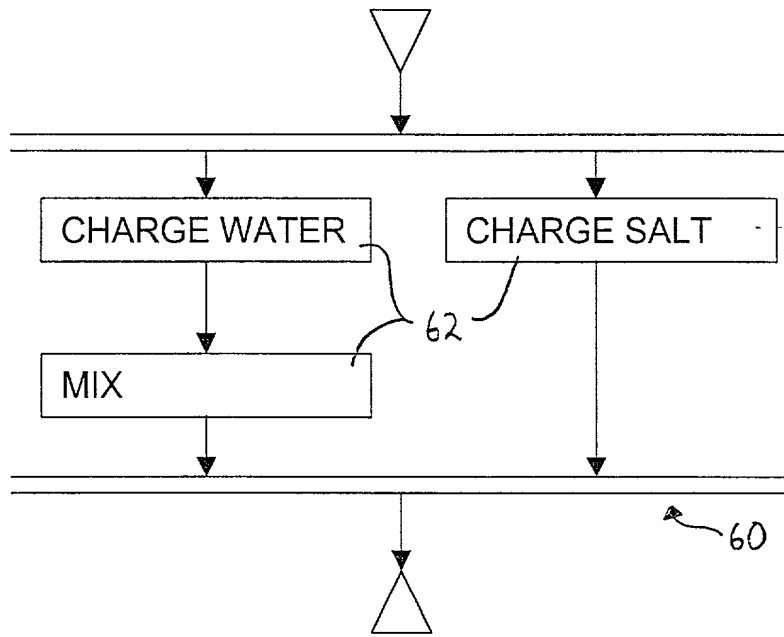


Fig. 54

PROCESS ACTION	RECIPE SEGMENT
MIX	<pre> graph TD     Start(( )) --&gt; TRUE{TRUE}     TRUE --&gt; Mix[Mix]     Mix --&gt; Complete{Mix.State = Complete}     Complete --&gt; Next(( ))         </pre>
CHARGE SALT	<pre> graph TD     Start(( )) --&gt; TRUE{TRUE}     TRUE --&gt; AddSalt[AddSalt]     AddSalt --&gt; Decision{ }     Decision --&gt; Next(( ))         </pre>
CHARGE WATER	<pre> graph TD     Start(( )) --&gt; TRUE{TRUE}     TRUE --&gt; ValveCheck[ValveCheck]     ValveCheck --&gt; AddWater[Add DistilledWater]     AddWater --&gt; Decision1{ }     Decision1 -- Heat --&gt; HeatBlock[Heat 100° F]     Decision1 -- No Heat --&gt; Next(( ))     HeatBlock --&gt; Decision1     Decision1 --&gt; Decision2{ }     Decision2 --&gt; Next2(( ))         </pre>

Fig. 55

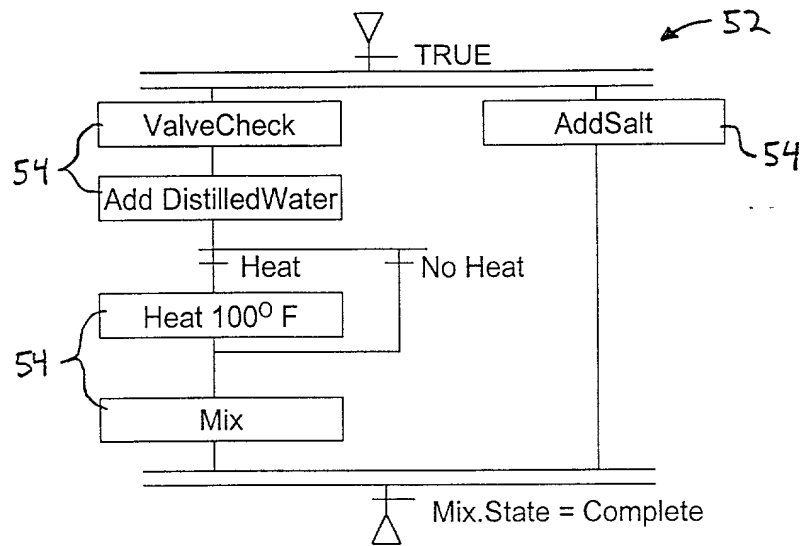


Fig. 56

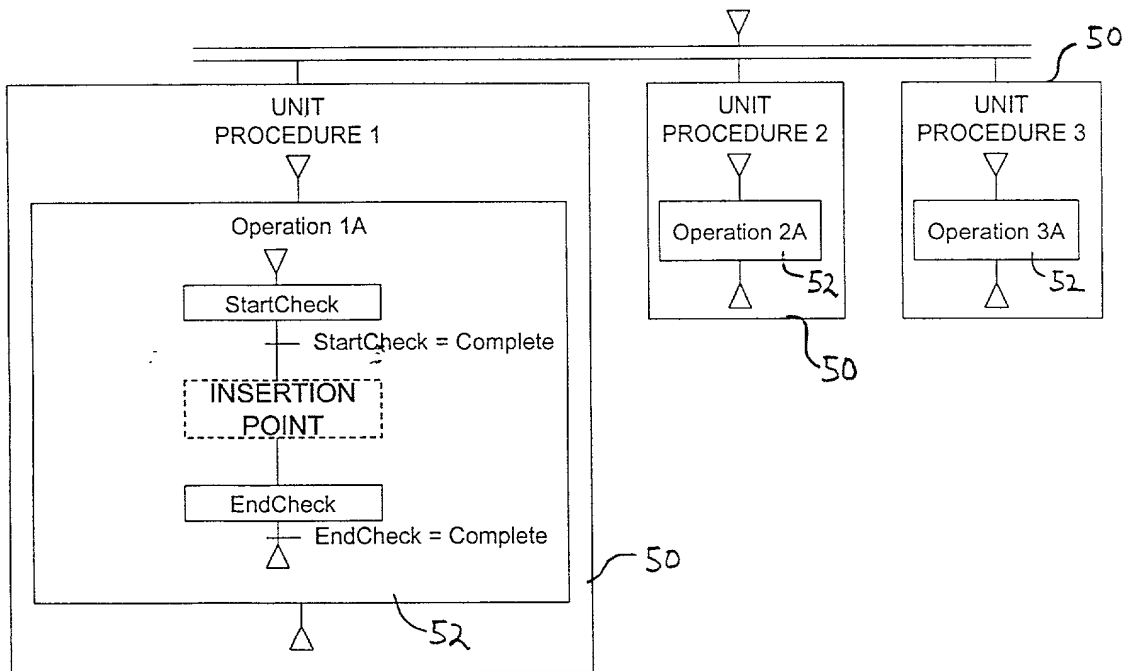


Fig. 57



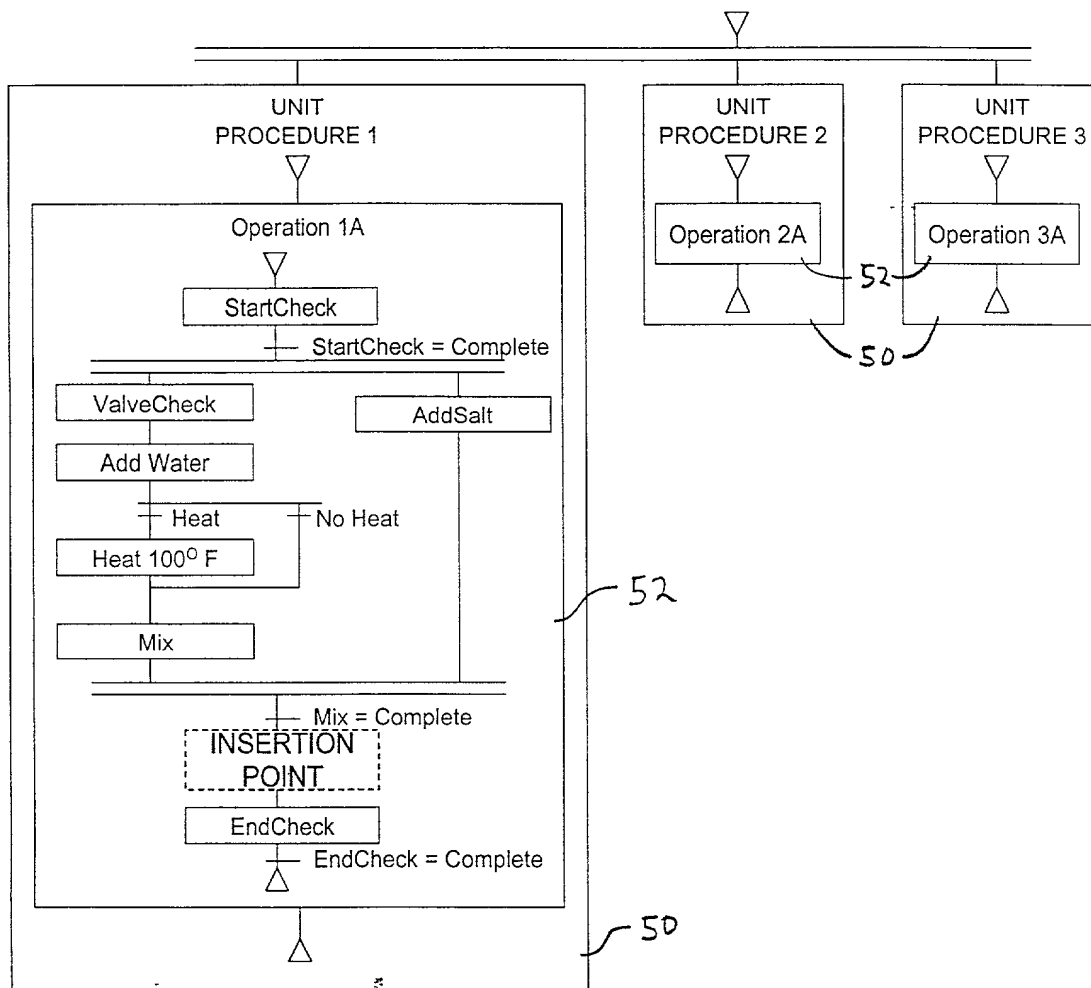


Fig. 58

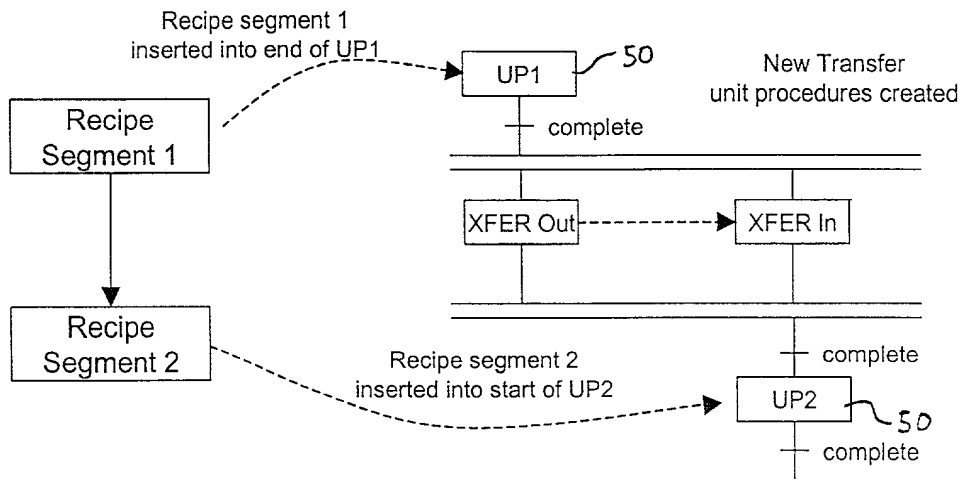


Fig. 59

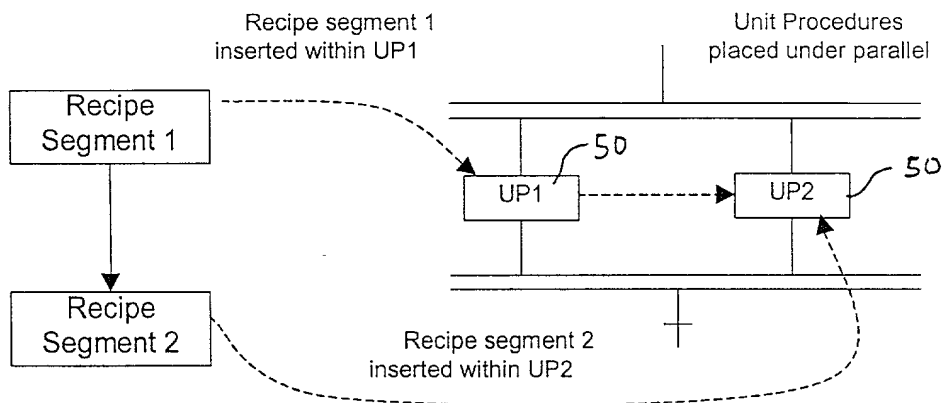


Fig. 60

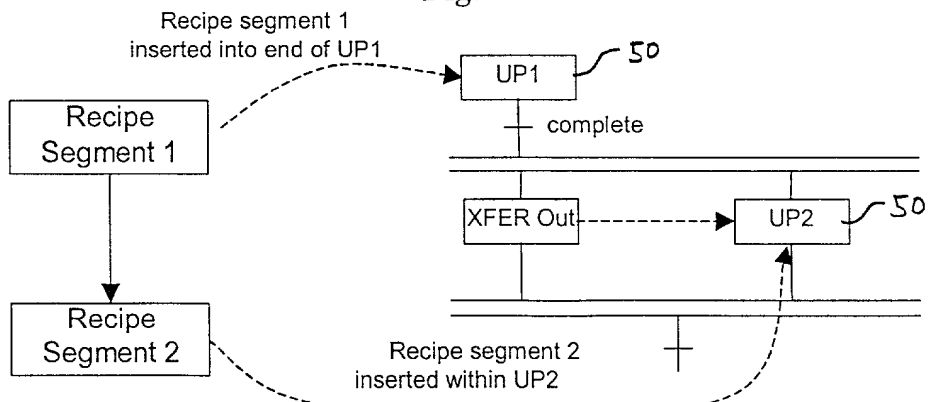


Fig. 61

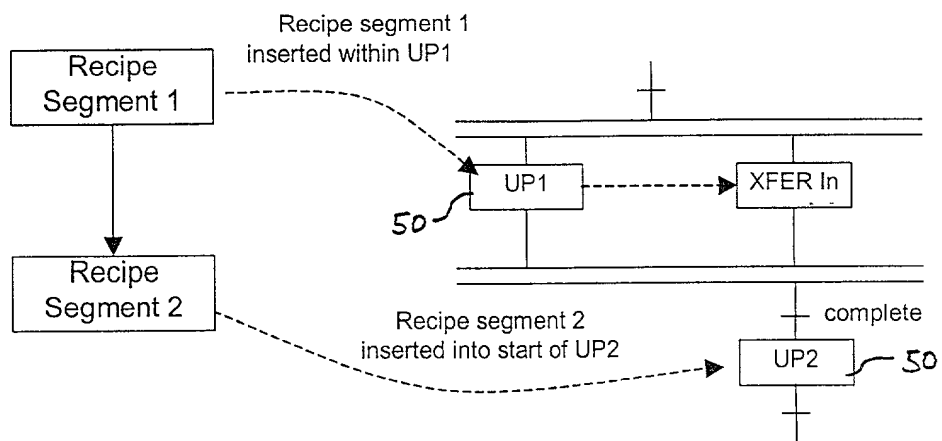


Fig. 62

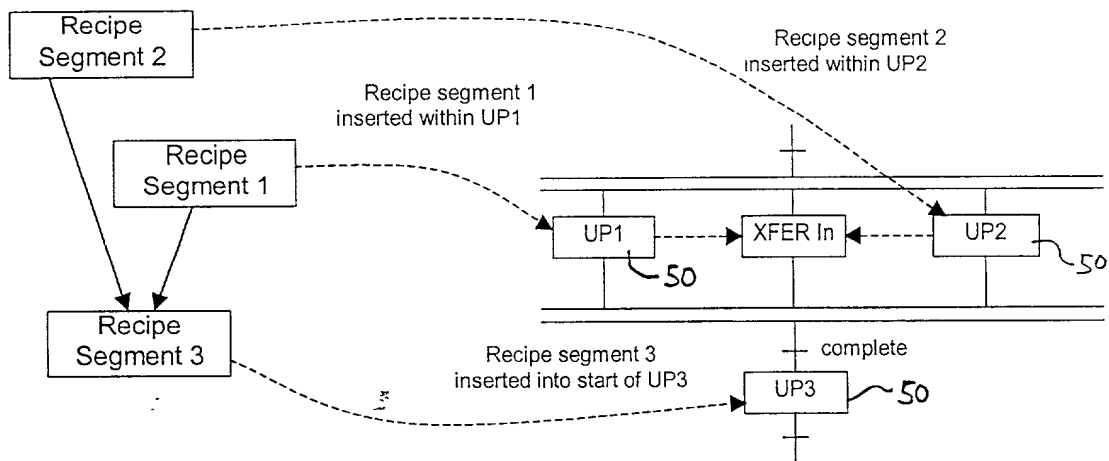


Fig. 63

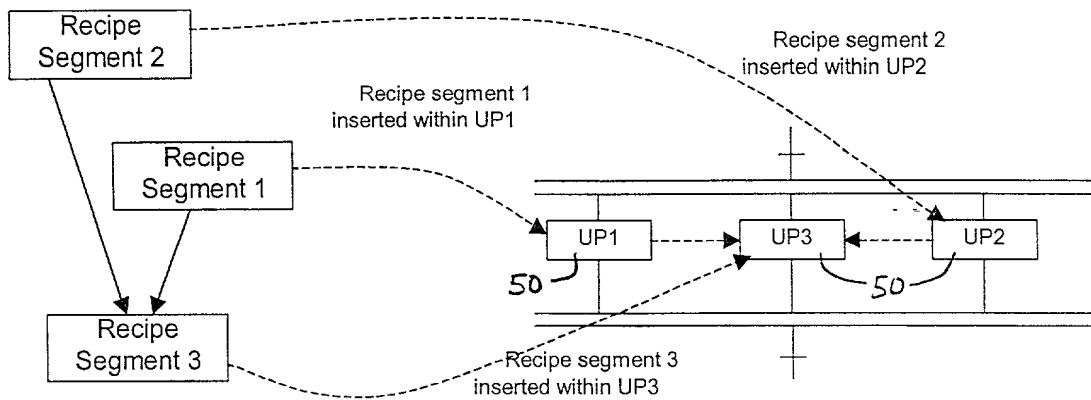


Fig. 64

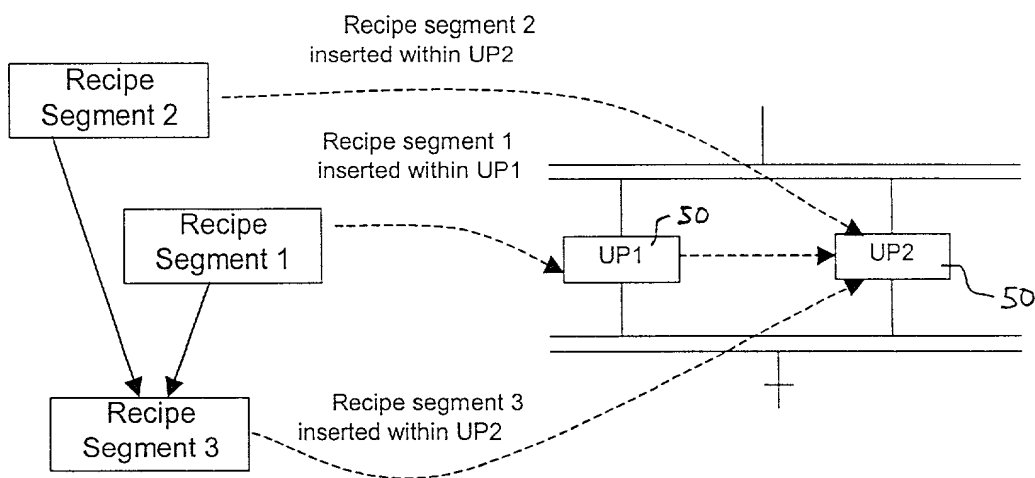


Fig. 65

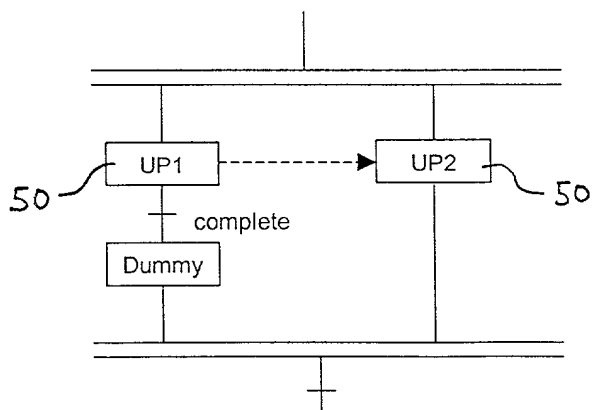


Fig. 66

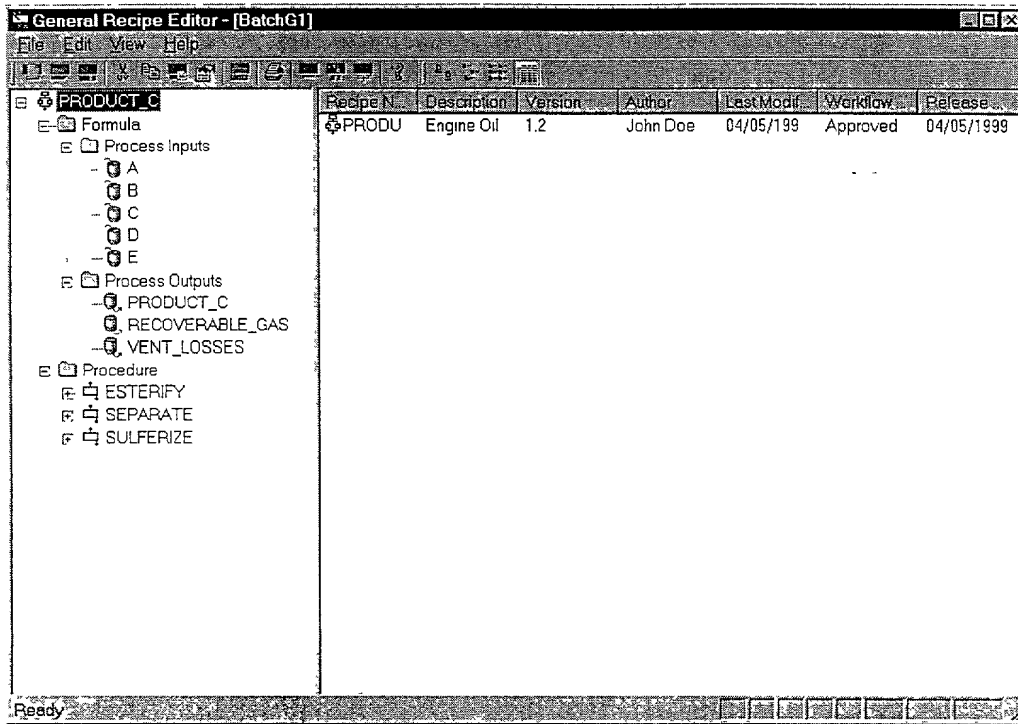


Fig. 67

**Edit Recipe**

General | History | Results

Name:

Version:  Revision:

Description:

Workflow State:

Author:

Product Line:

Product Code:

**Dates and Times**

Last Modified:

Effective Date:

Expiration Date:

**Normalized Batch**

Batch Size:

Eng. Unit:

OK Cancel Apply

Fig. 68

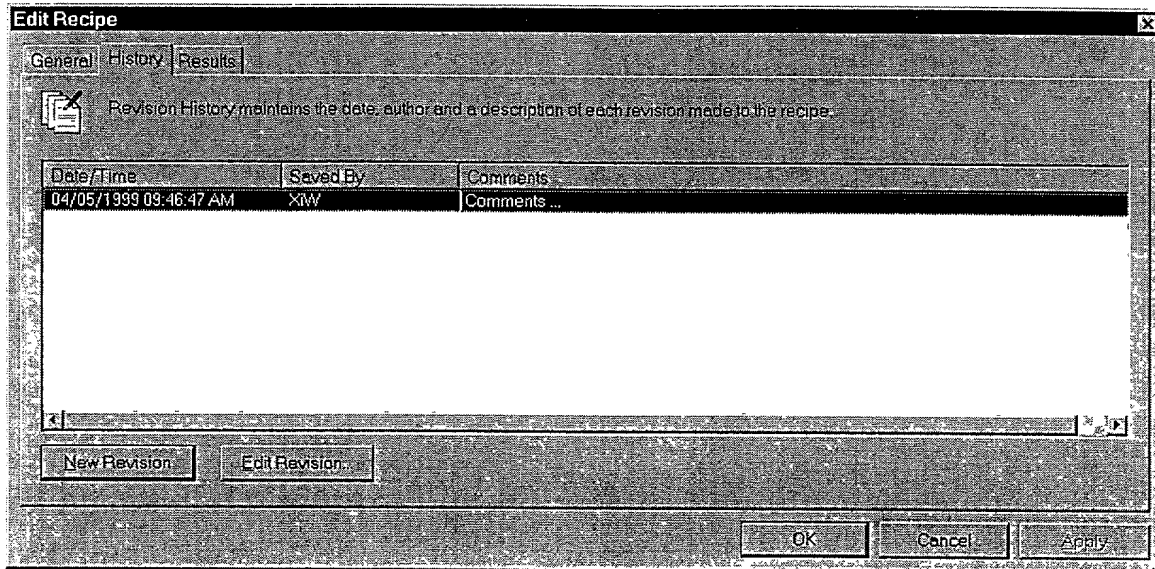


Fig. 69

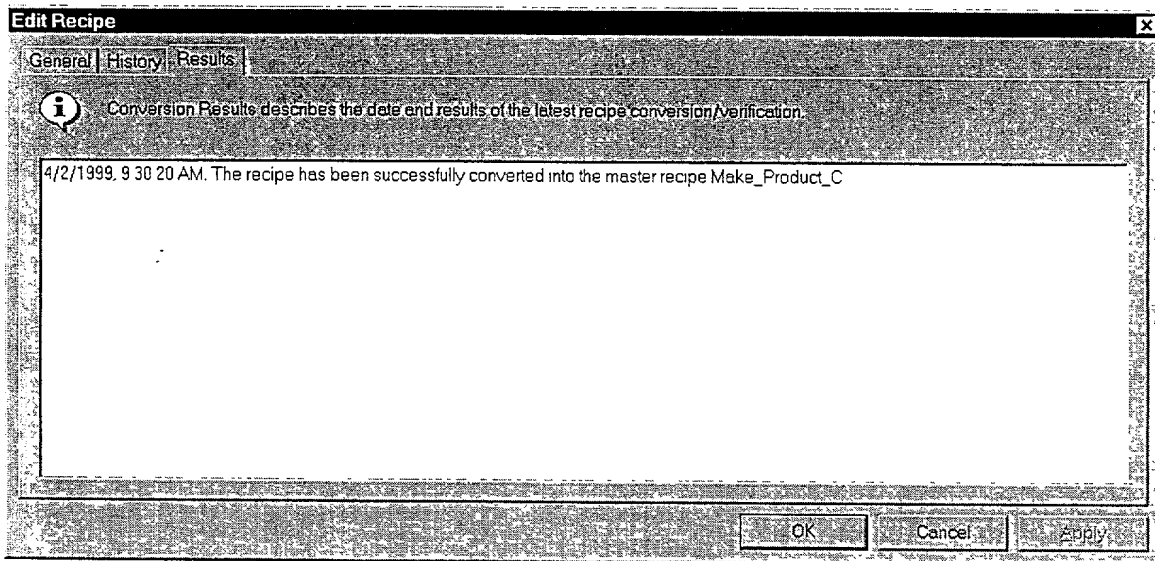


Fig. 70

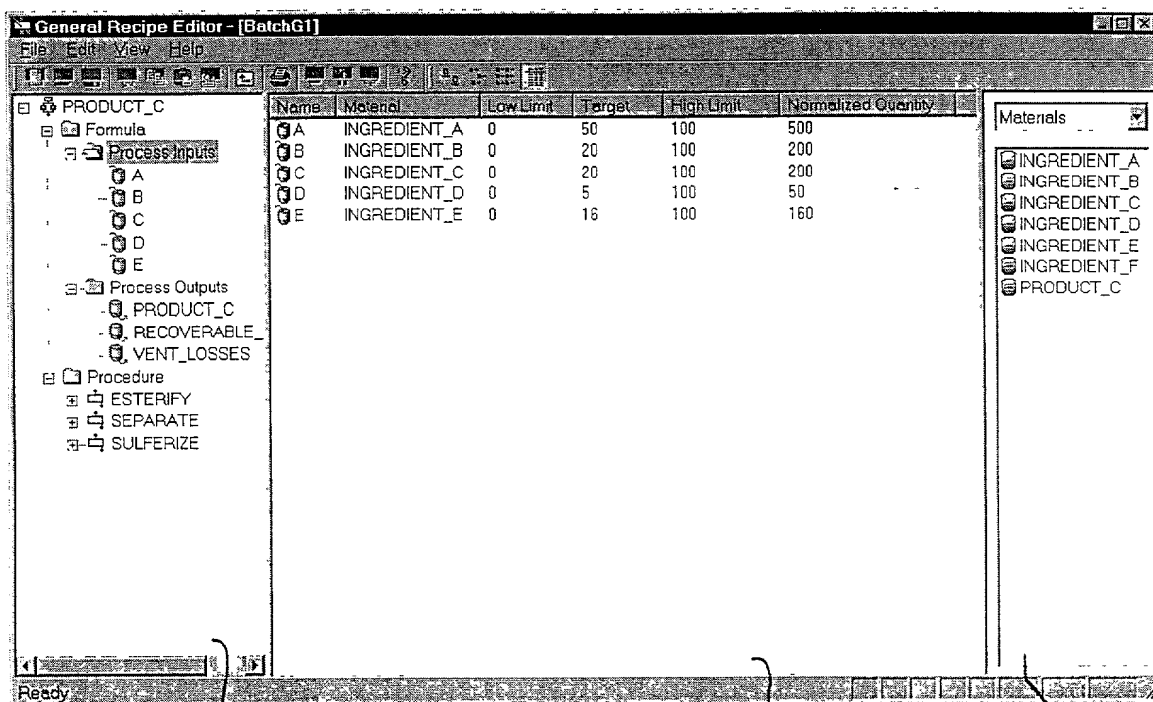


Fig. 71

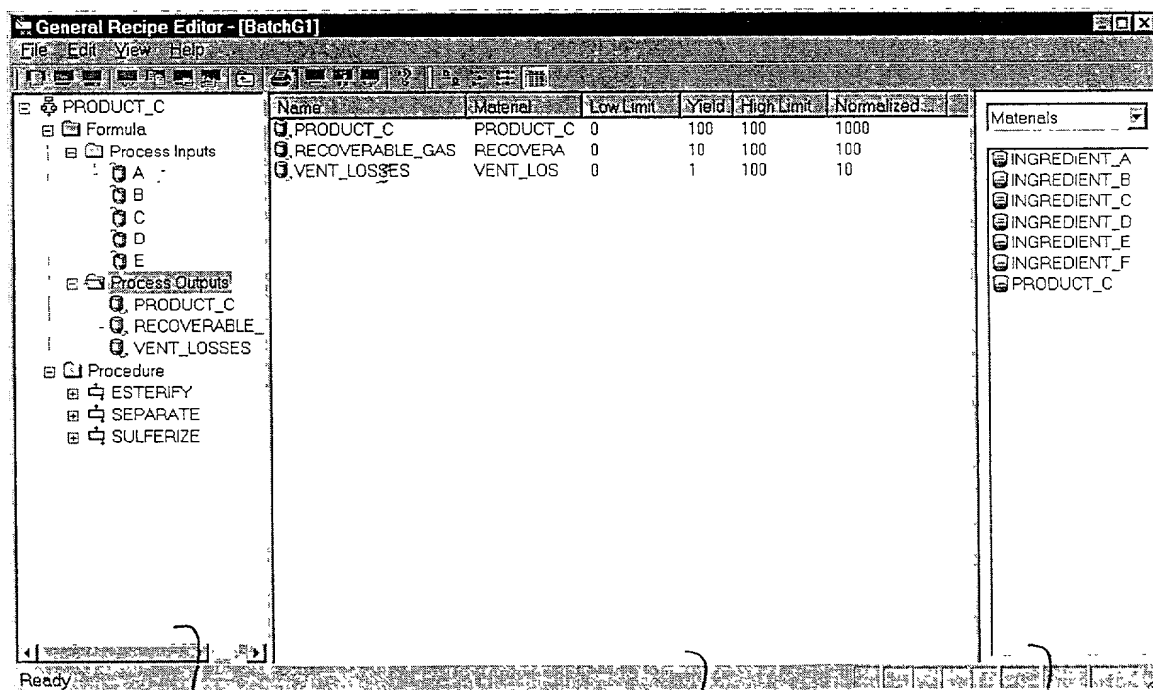


Fig. 72

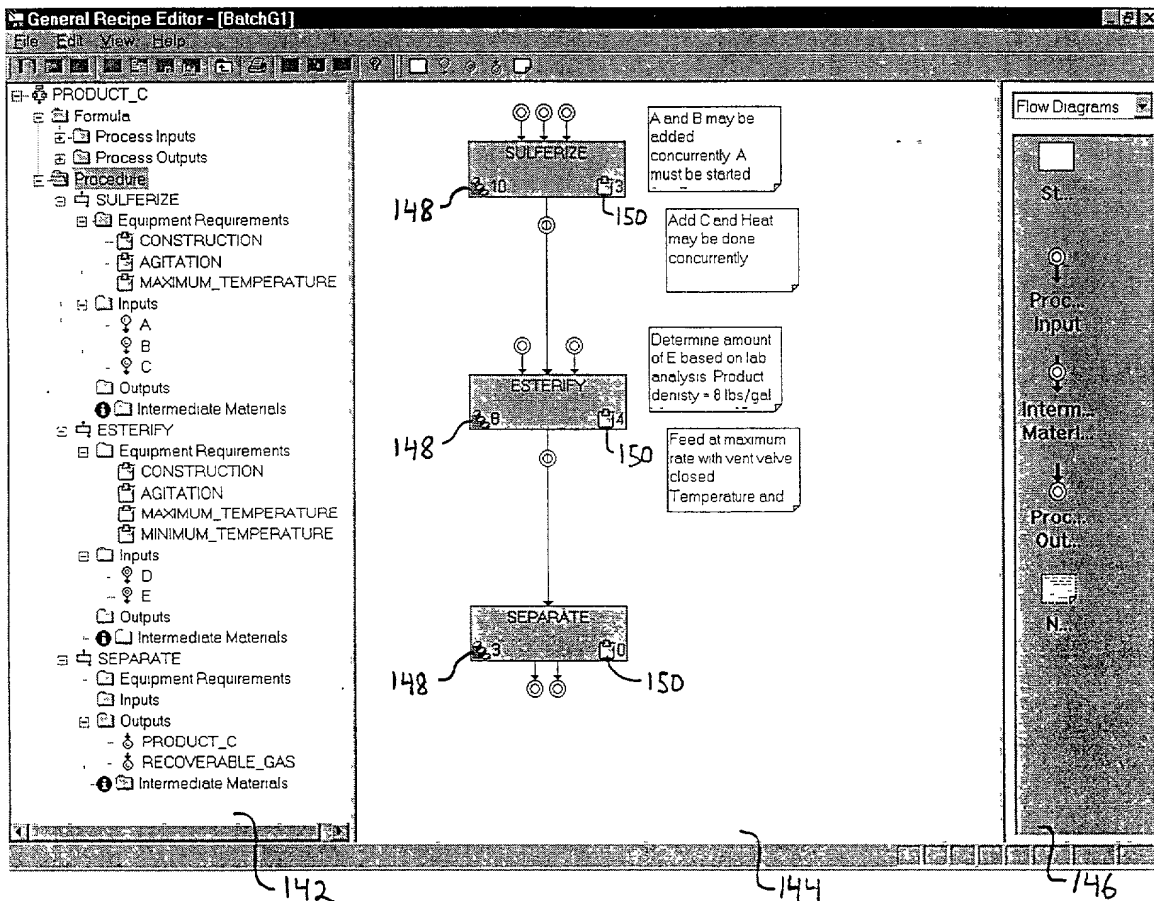


Fig. 73

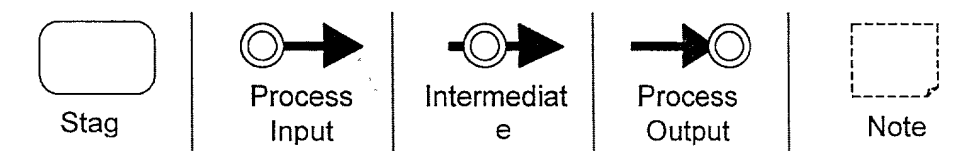


Fig. 74



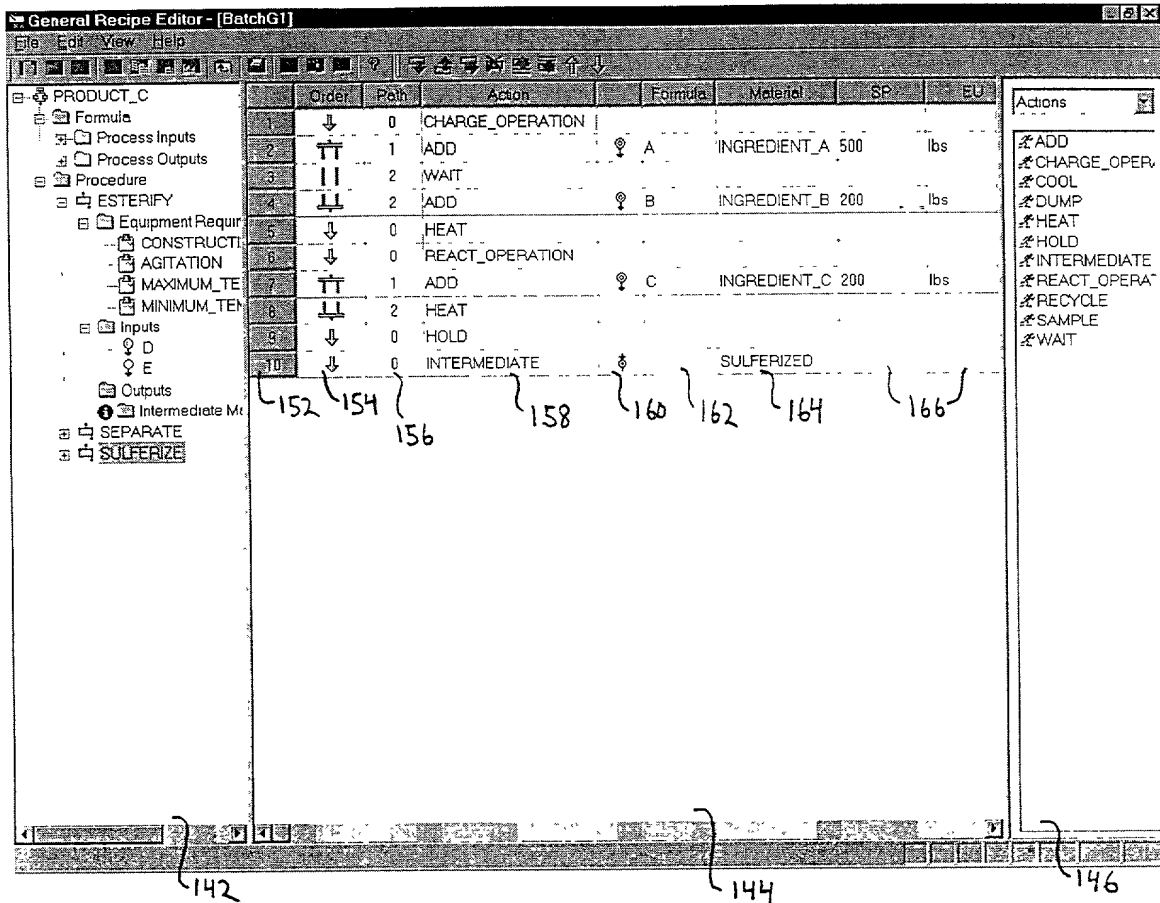


Fig. 75

**View Action**

**General** | Process Inputs | Process Parameters | History

Name: **ADD**

Version: **1.0** Revision: **0**

Description: **Add action**

Workflow State: **In-Work**

Author:

Product Line:

**Dates and Times**

Last Modified: **05/07/1999** **14:17 PM**

Effective Date: **05/07/1999**

Expiration Date: **05/07/1999**

**Material Handling**

☐ None

☐ Process Inputs

☐ Process Outputs

**Buttons:** OK Cancel

Fig. 76

**View Action**

General | **Process Inputs** | Process Parameters | History

Process Inputs define material inputs and quantities for recipes.

	Name	Material	Low	Target	High	Quantity	Comments
1	INPUT_MATERIAL		.00	100.00	100.00	.00	Add material to a container

New Input | Delete Input

OK | Cancel

Fig. 77

**View Action**

General | **Process Parameters** | Process Inputs | History

Process Parameters allows you to add, edit and delete action process parameters.

	Name	Type	Description	Default	Low	High	EUs	Scale
1	FLOW_RATE	Real	Flow rate of material into container	100.00	50.00	200.00	lbs/min	<input checked="" type="checkbox"/>
2	TRIP_RATE	Real	Slow flow rate	50.00	20.00	100.00	lbs/min	<input checked="" type="checkbox"/>
3	LOW_TRIP_POINT	Real	Low trip point	80.00	00.00	100.00	%	<input type="checkbox"/>
4	HIGH_TRIP_POINT	Real	High trip point	95.00	00.00	100.00	%	<input type="checkbox"/>

New Parameter | Delete Parameter

OK | Cancel

Fig. 78

**Edit Action**

General | Process Inputs | Process Parameters | History

Revision History maintains the date, author and a description of each revision made to the action.

Date/Time	Saved By	Comments
05/07/1999 04 15 35 PM	XIW	This is the first creation of the action. More changes are coming

New Revision Edit Revision

OK Cancel Apply

Fig. 79

**View Action**

General | Process Outputs | Process Parameters | History

Process Outputs define finished products and their yields as the outcome of recipe execution.

	Name	Material	Low	Yield	High	Quantity	Comments
1	PRODUCT_C	PRODUCT_C	00	100.00	100.00	1000.00	Product C

New Output Delete Output

OK Cancel

Fig. 80

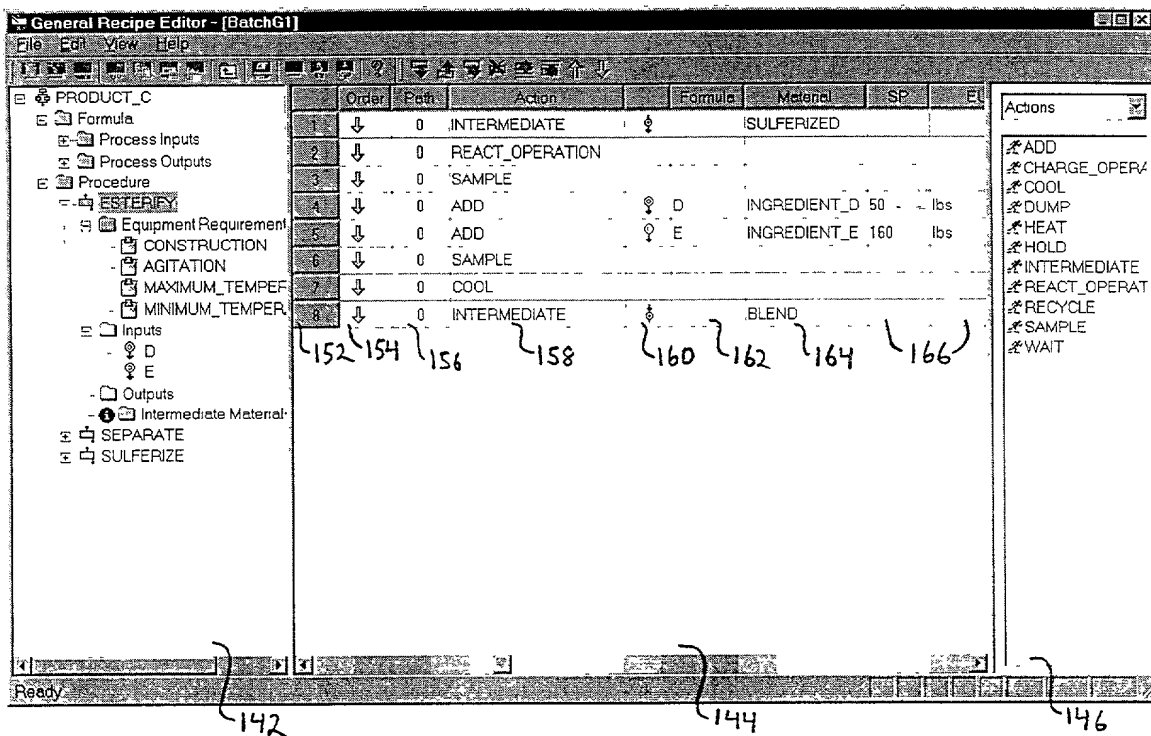


Fig. 81

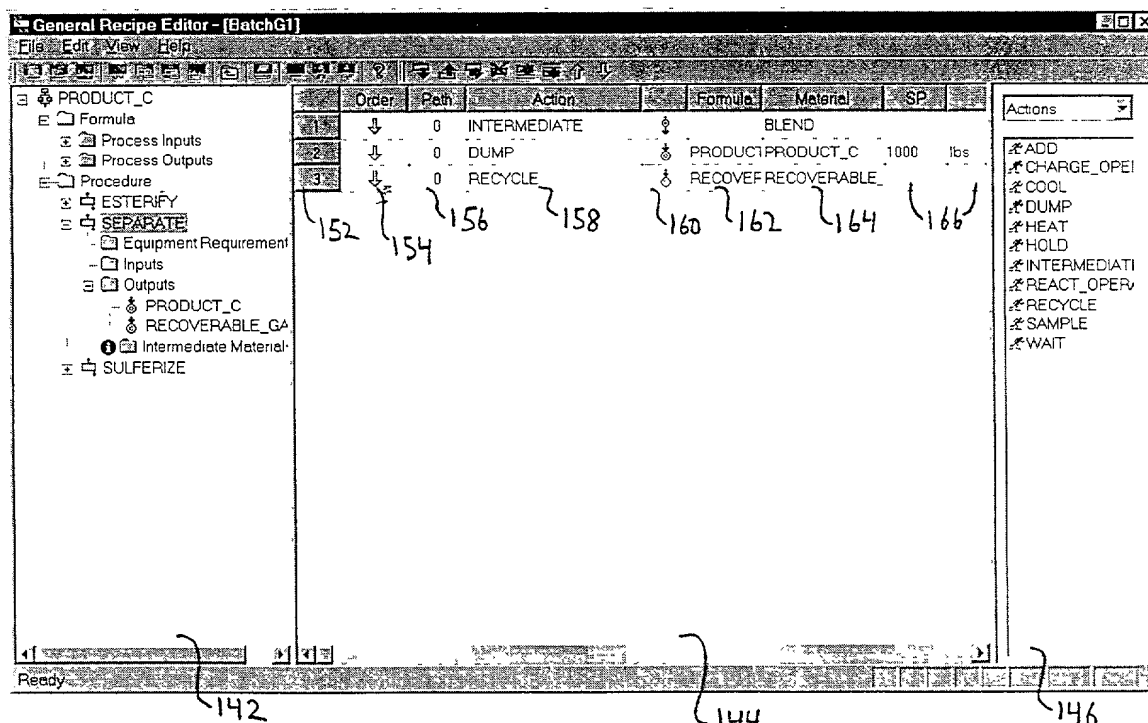


Fig. 82

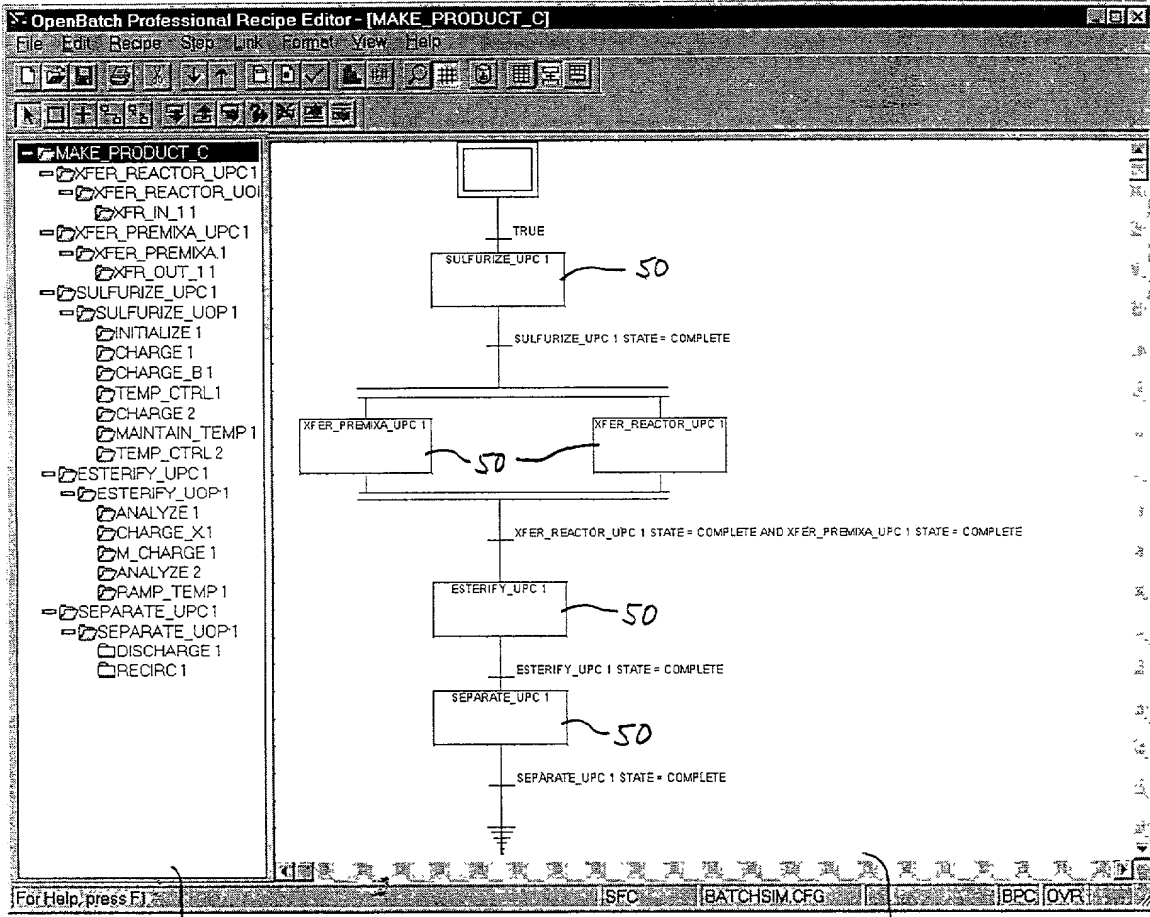


Fig. 83

**Header Data** [X]

Procedure Identifier: MAKE\_PRODUCT\_C

Version Number: 1.0

Version Date: 04/05/1999 03:08:20 PM

Author: John Doe

Approved By: Joe D

Product Name: Engine Oil

Product Code: Lube C

Batch Size: Min: 500 Default: 1000 Max: 2000

Units of Measure: lbs

Estimated Duration: 2 hr

Procedure Description: Lube Oil for Gas Engine

Procedure Abstract:

Released To Production: ☒

Area Model File Name: \\XIW2\BATCHCTL\PEASOUP\RECIPES\BATCHSIM.CFG

Area Model Verified Against: Recipe verification not executed.

Time of Verification: Recipe verification not executed.

File Name: \\XIW2\BATCHCTL\PEASOUP\RECIPES\MAKE\_PRODUCT.CBP

OK Cancel

Fig. 84

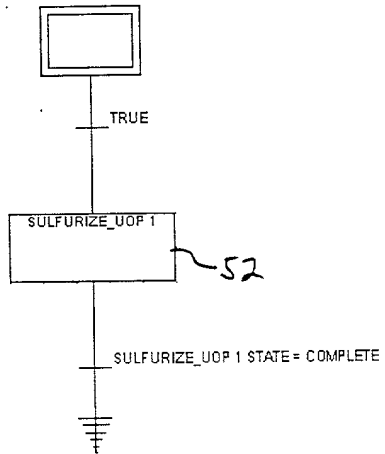


Fig. 85

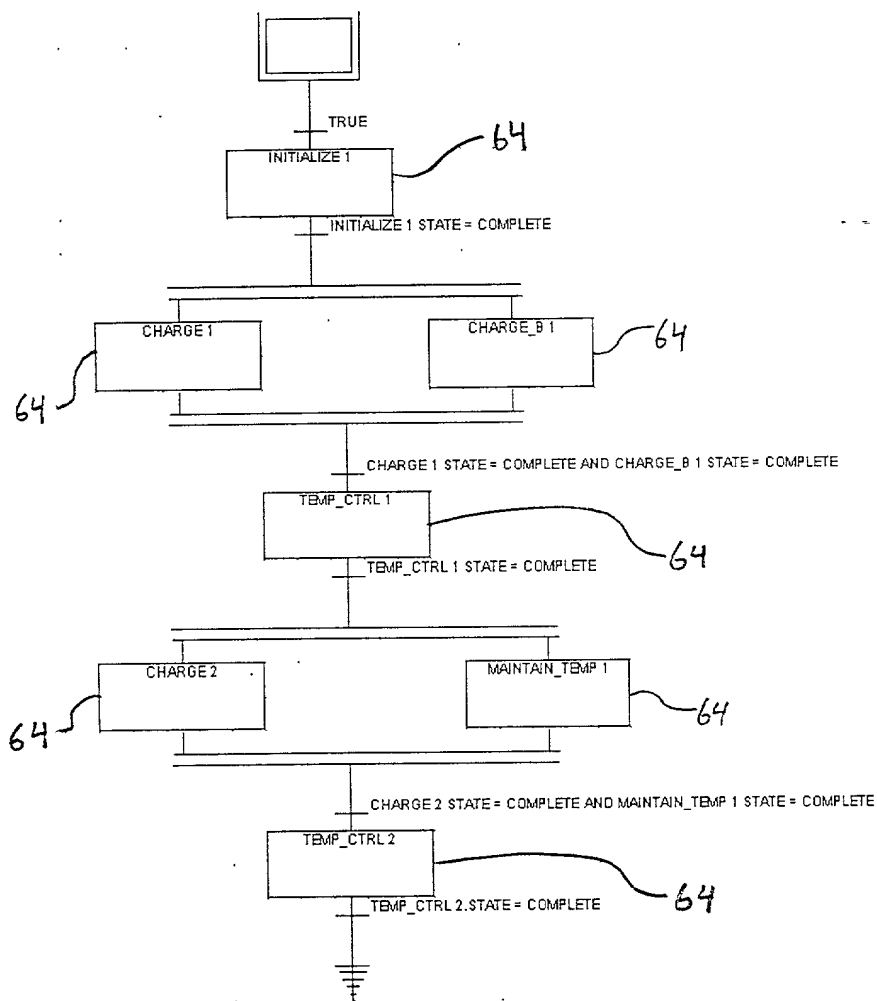


Fig. 86



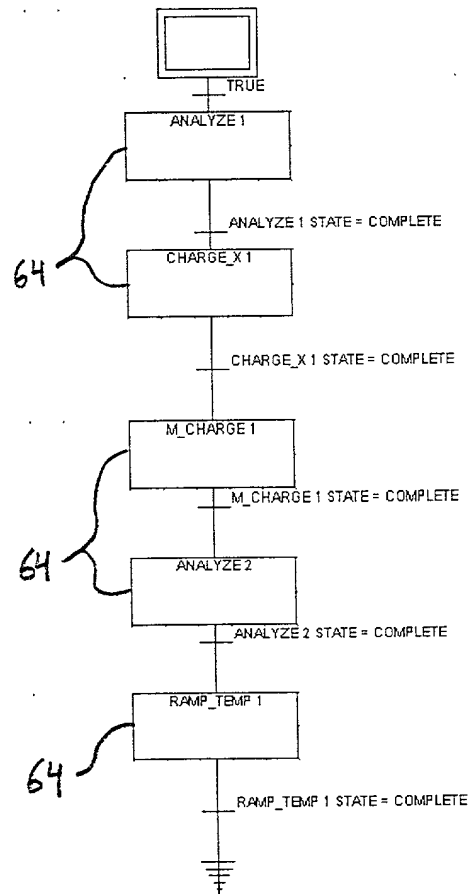


Fig. 87

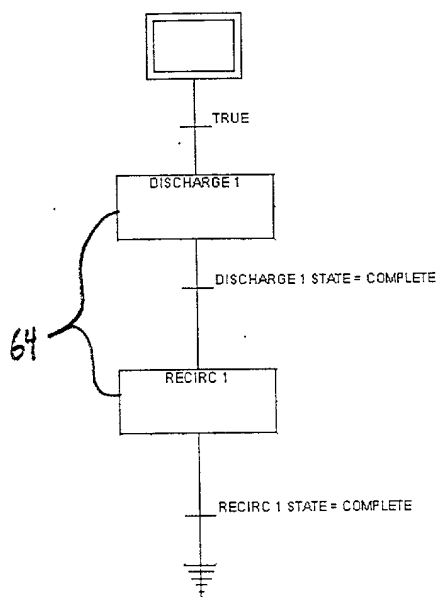


Fig. 88

Recipe Segment	Process Action	Class/Instance Based	Associated Unit	Material
Add, SU2	Charge:1	Instance	Premix_A	A
Add, SU4	Charge_B:1	Instance	Premix_A	B
Add, SU7	Charge:2	Instance	Premix_A	C
Heat, SU5	Temp_Ctrl:1	Class	Premix_A	
Heat, SU8	Maintain_Temp:1	Class	Premix_A	
Hold, SU9	Temp_Ctrl:2	Class	Premix_A	
Add, E4	Charge_X:1	Instance	Reactor_1	D
Add, E5	M_Charge:1	Instance	Reactor_1	E
Sample, E3	Analyze:1	Instance	Reactor_1	
Sample, E6	Analyze:2	Instance	Reactor_1	
Cool, E7	Ramp_Temp:1	Class	Reactor_1	
Dump, SE2	Discharge:1	Instance	Reactor_1	Product_C
Recycle, SE3	Recirc:1	Instance	Reactor_1	Recoverable_Gas

Fig. 89

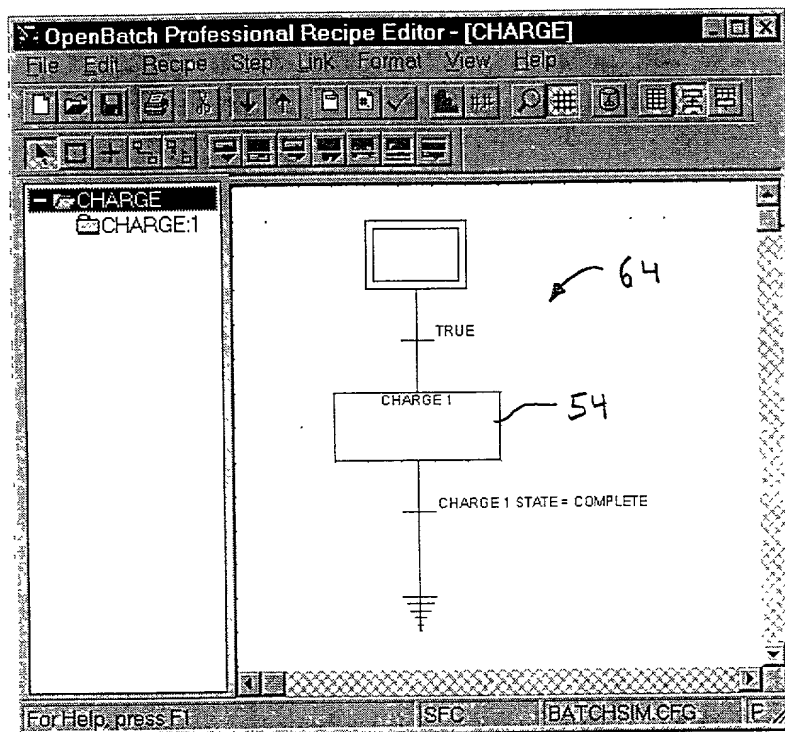


Fig. 90

**Formula Value Entry**

	Name	Type	Origin	Low	Value	High	EU	Display
1	AMOUNT TO CHARGE	Real	Value	100.00	500.00	800.00	GALLONS	<input checked="" type="checkbox"/>
2	FLOW RATE	Real	Operator	100.00	200.00	300.00	GAL/HR	<input type="checkbox"/>

It could have a mapping equation, for example:

$$100 + (SP + 250) / 60$$

OK Cancel

Fig. 91

Edit Phase: CHARGE

General Parameters Reports Messages

Name	ID	Type	High	Low	Default	Units/E.U.	Scale	DL on Start	DL on TOC
AMOUNT TO CHARGE	1	REAL	1000	300	500	GALLONS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FLOW RATE	2	REAL	500	100	200	GAL/HR	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Add Parameter Delete Parameter

OK Cancel Apply Help

Fig. 92

Edit Phase: CHARGE

General Parameters Reports Messages

Name	ID	Type	Units/E.U.	UL on Terminal State	UL on TOC
AMOUNT CHARGED	1	REAL	GALLONS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Add Report Delete Report

OK Cancel Apply Help

Fig. 93

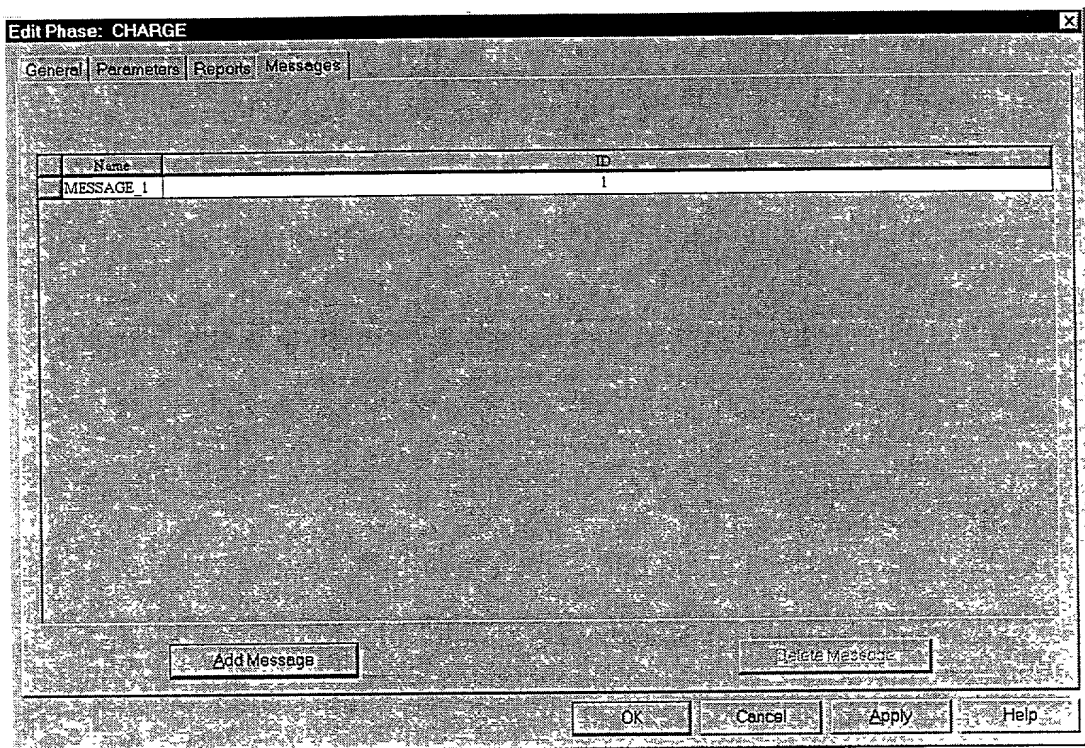


Fig. 94

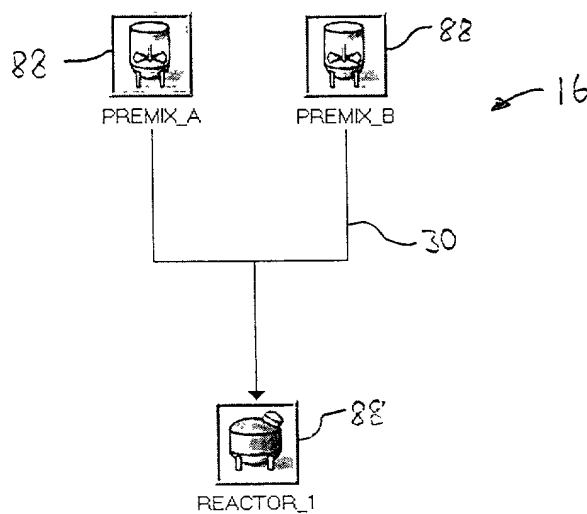


Fig. 95

2025 RELEASE UNDER E.O. 14176

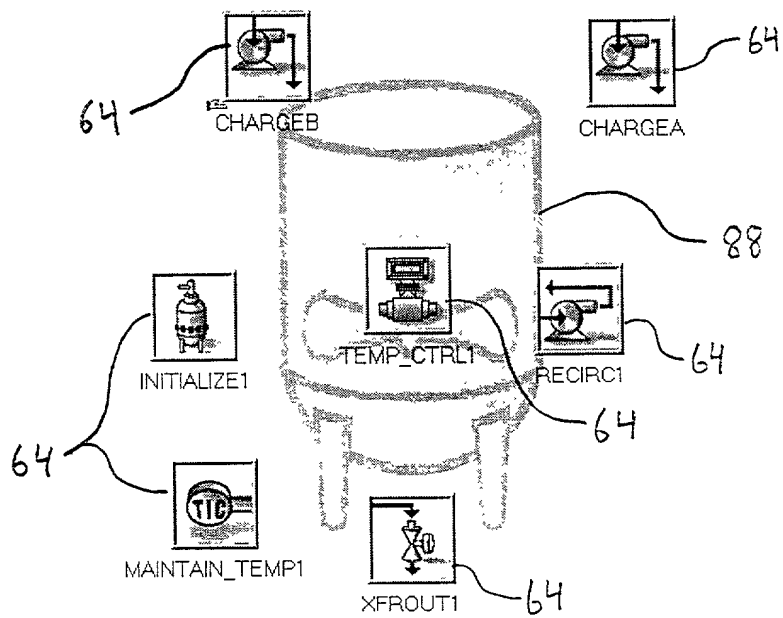


Fig. 96

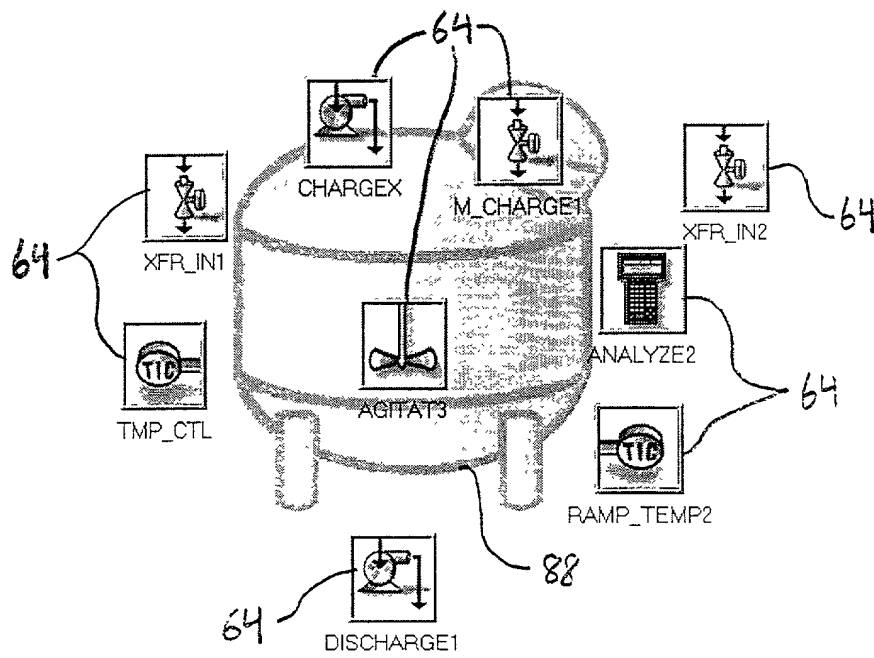


Fig. 97

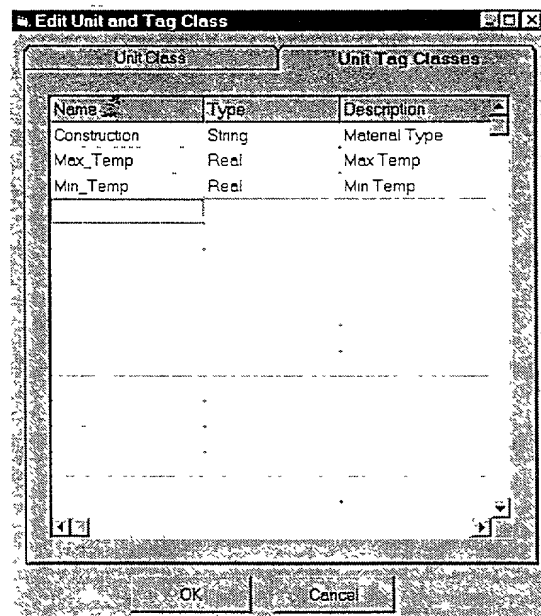


Fig. 98

**Edit Unit Tag**

Name:

Tag Class:

Type:

Enumerator:

☒ Static
 ☐ Dynamic

Value:

OK Cancel

Fig. 99

**Edit Unit Tag**

Name:

Tag Class:

Type:

Enumerator:

☐ Static
 ☒ Dynamic

Data Server

Item:

Name:

Data Server Type:

Protocol:

OK Cancel

Fig. 100



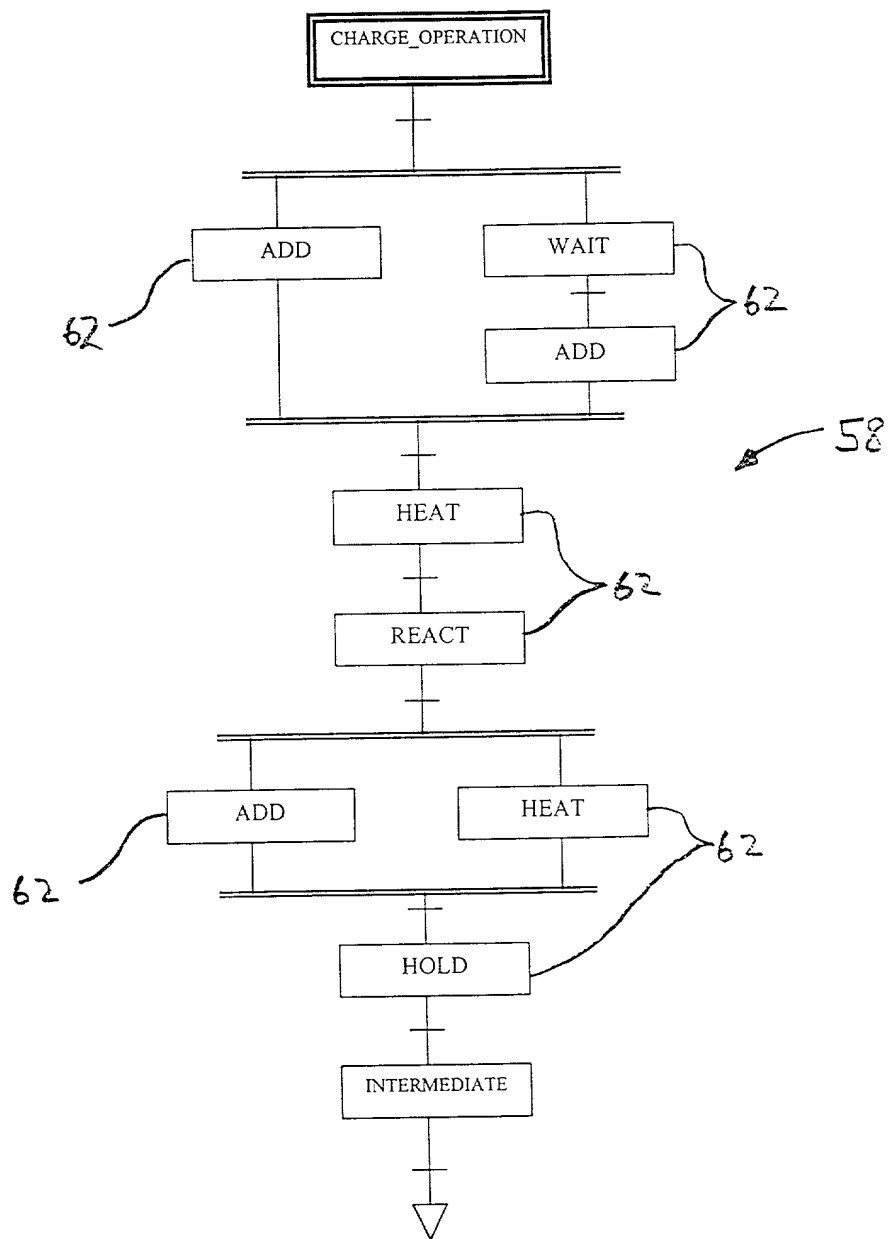


Fig. 101